STIC-Biotech/ChemLib

From: Sent: To: Subject:

Pak, Michael Wednesday, February 27, 2002 10:15 AM STIC-Biotech/ChemLib 08/816,011 sequence search

Sequence search - 2 month amendment App. #: 08/816,011 Result format: Paper. Title: potassium channels ...

Please search:

Search commercial and interference database.

SEQ ID NO:36 and 63.

Thanks,

Mike Pak

Michael Pak Art Unit 1646 Mailbox: CM1, Rm. 10C00 Office: CM1, Rm. 10E13 703-305-7038

Michael Pak **USPTO** Art Unit 1646 CM1; Rm. 10E13 703-305-7038

CIP OF PCT/USE 5/4364 10/31/94 Pot to 555 Rozs

CIP OF 00/3321312 10/31/94 Pot to 555 Rozs

	of Contact:
	Sheppard
archer:	·-··*

Searcher: _ 1 el: 308-4490 Phone: ___ Location: Date Picked Up: _ Date Completed: 3///02 Searcher Prep/Review: ____ Clerical: Online time: _

TYPE OF SEARCH: NA Sequences:_____

AA Sequences:_____ Structures: Bibliographic: ______

Litigation: Full text:

Patent Family: Other:

VENDOR/COST(where applic.) STN:

DIALOG: Questel/Orbit: _____

DRLink: Lexis/Nexis:

Sequence Sys.: _____ WWW/Internet: _____ Other (specify): _____

THIS PAGE BLANK (USPTO)

```
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

February 27, 2002, 16:59:59 ; Search time 25.85 Seconds (without alignments)

2455.791 Million cell updates/sec

Run on:

US-08-816-011(-63)
2294
A WINNENTYAVEGERFPRD......LTGGLWPVVIEHFVDKPSIL 434 Title: Perfect score: Sequence:

473505 segs, 146272329 residues Gapext 0.5 BLOSUM62 Gapop 10.0 Scoring table: Searched:

473505 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Liafing Trst 45 summaries

sp_organelle:*
sp_phage:*
 sp_phant:*
 sp_rodent:*
 sp_vrous:*
 sp_vrus:*
 sp_vertebrate:*
sp_unclassified:* sp_archea; sp_bacter; sp_fung:* sp_fung:* sp_invertebrate:* sp_mammal:* SPTREMBL_17:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

					SUMMAKIES	
		dР				
Result		Query				
NO.	Score	Match	Match Length DB	DB	QI	Description
	2265	98.7	434		Q19495	Q19495 caenorhabdi
2	802	35.0	418	2	Q9U3L8	Q9u318 caenorhabdi
E	716.5	31.2	461	Ŋ	023599	Q23599 caenorhabdi
4	706.5	30.8	450	ហ	093871	093871 caenorhabdi
S	645	28.1	458	Ŋ	Q9VMB6	O9vmb6 drosophila
9	574.5	25.0	800	Ŋ	021145	021145 caenorhabdi
7	367.5	16.0	475	11	Q99P65	Q99p65 mus musculu
œ	343.5	15.0	456	4	Q9UJY2	Q9ujy2 homo sapien
თ	336.5	14.7	456	9	Q9BG85	Q9bq85 oryctolagus
10	328.5	14.3	456	11	8TIL60	09jit8 mus musculu
11	327.5	14.3	475	4	Q9BZD2	Q9bzd2 homo sapien
12	320.5	14.0	428	10	Q9M5X9	Q9m5x9 arabidopsis
13	313.5	13.7	428	10	064603	064603 arabidopsis
14	302.5	13.2	458	11	оэлнго	Q9jhf0 mus musculu
15	302.5	13.2	458	11	Q9DBT8	Q9dbt8 mus musculu
16	301.5	13.1	460	11	Q9JIM1	Q9jim1 mus musculu
17	301.5	13.1	460	11	Q99K84	Q99k84 mus musculu
18	291.5	12.7	476	Ŋ	Q9NHZ1	Q9nhz1 drosophila
19	261.5	11.4	397	4	6SNN6O	Q9nus9 homo sapien

InterPro; IPR002259; DER_Nucleoside_tran.

DR

1 46 2	Q9nih7 plasmodium Q9sy87 arabidopsis
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	422 5 Q9NIH7 382 10 Q9SY87
00 00 00 00 00 00 00 00 00 00 00 00 00	5.7
249.5 221.5 221.5 196.5 196.5 195.5 185.5 180 170 170 170 131 131 132.5 133 133 131 131	131 128.5
011022020202020202020202020202020202020	44 45

ALIGNMENTS

RESULT Q19495		
ID	Q19495 PRELIMINARY; PRT; 434 AA.	
AC		
DŢ		
DŢ	(TrEMBLrel. 01,	
DI	01-JUN-2001 (TrEMBLrel. 17, Last annotation update)	
DE	SIMILARITY TO HNP36 PROTEIN.	
GN	F16H11.3.	
os		
႘	Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;	dea;
ပ	Rhabditidae; Peloderinae; Caenorhabditis.	
XO	NCBI_TaxID=6239;	
RN	[1]	
RP	SEQUENCE FROM N.A.	
RC	STRAIN=BRISTOL N2;	
RX	MEDLINE=94150718; Pubmed=7906398;	
RA	K., Baynes C., Berks M.,	
RA	Bonfield J., Burton J., Connell M., Copsey T., Cooper J., Coulson A.,	n A.,
RA	Craxton M., Dear'S., Du Z., Durbin R., Favello A., Fulton L.,	
RA	Gardner A., Green P., Hawkins T., Hillier L., Jier M., Johnston L.,	L.,
RA	Jones M., Kershaw J., Kirsten J., Laister N., Latreille P.,	
RA	Lightning J., Lloyd C., Mcmurray A., Mortimore B., O'Callaghan M.,	:
RA	Parsons J., Percy C., Rifken L., Roopra A., Saunders D., Shownkeen	en R.,
RA	Smaldon N., Smith A., Sonnhammer E., Staden R., Sulston J.,	
RA	Thierry-Mieg J., Thomas K., Vaudin M., Vaughan K., Waterston R.,	
RA	Watson A., Weinstock L., Wilkinson-Sproat J., Wohldman P.;	
RŢ	"2.2 Mb of contiguous nucleotide sequence from chromosome III of	ن ن
RŢ	elegans.";	
RL	Nature 368:32-38(1994).	
RN	[2]	
RP	SEQUENCE FROM N.A.	
SC SC	STRAIN=BRISTOL N2;	
RA	Wu X.;	
RL	Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.	
RN	[3]	
RP		
RC	STRAIN=BRISTOL N2;	
RA	Waterston R.;	
RL	Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.	
DR	EMBL; U55376; AAA98003.1;	

3

```
Query Match
                                        Matches
                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                   251
                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                  ò
                                                                                                                     9
                                                                                                                                                           δ
                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                          QQ
                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCOS OCCOS 
                                                                                                                                       ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YTLLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPV 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLW 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                   09
                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                               VETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVI
                                                                                                                                                                                                                                                                                                                                    VLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLI
                                                                                                                                                                                                                                                                                                                                                                                                                                   ETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEI
                                                                                                                                                                           MVIINRSNTYAVEQEAFPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDG
                                                                                                                                                                                                                                                                                                                                                                                                               TVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKA
                                                                                                                                       ;
                                                                                                  Length 434;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'Genome sequence of the nematode C.elegans: A platform for
                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (NOV-1996) to the EMBL/GenBank/DDBJ databases
Pfam; PF01733; Nucleoside_tran; 1.
ProDom; PD005103; DER_Nucleoside_tran; 1.
SEQUENCE 434 AA; 49316 MW; 66947B8D51833965 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; Z82263; CAB62793.1; ...
InterPro; IPR02259; DER Nucleoside_tran.
Pfam: PF01733; Nucleoside_tran; 1.
SEQUENCE 418 AA; 46333 MW; 5CBDD27EE06BFCBD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence update)
Last annotation update)
                                                                                              Score 2265; DB 5;
Pred. No. 3.4e-141;
0; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-99069613; PubMed-9851916;
                                                                                                98.7%;
99.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      investigating biology.";
Science 282:2012-2018(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAY-2000 (TrEMBLrel. 13, 01-MAY-2000 (TrEMBLrel. 13, 01-JUN-2001 (TrEMBLrel. 17, C47A4.2 PROTEIN.
                                                                                              Query Match
Best Local Similarity 99.1
Matches 430; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421 AVVIEHFVDKPSIL 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421 PVVIEHFVDKPSIL 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=6239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mortimore B.J
Submitted (NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C47A4.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9U3L8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           09U3L8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9U3L8
    SOR
                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                               à
                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

```
209
                                                                                                                                                                                                                                                                                                                                                                                                                                242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63 TWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLLVIVL 122
                                                                                                                                                                                                                                                                                                                       EPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITV 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=94150718; PubMed=7906398;
MEDLINE=94150718; PubMed=7906398;
Miscon R., Anscough R., Anderson K., Baynes C., Berks M.,
Miscon R., Anscough R., Connell M., Copsey T., Cooper J., Coulson A.,
Craxton M., Dear S., Du Z., Durbin R., Favello A., Fulton L.,
Gardner A., Green P., Hawkins T., Hillier L., Jier M., Johnston L.,
Jones M., Kershaw J., Kirsten T., Hillier L., Jier M., Johnston L.,
Lightning J., Lloyd C., Monurray A., Mortimore B., O'Callaghan M.,
Parsons J., Percy C., Rifken L., Roopra A., Saunders D., Shownkeen R.
Smaldon N., Smith A., Sonnhammer E., Staden R., Sullston J.,
Thierry Mieg J., Thomas K., Vaudin M., Waughan K., Waterston R.,
Watson A., Weinstock L., Wilkinson-Sproat J., Wohldman P.;
M. S. Mb of contiguous nucleotide sequence from chromosome III of C.
                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rhabditida; Rhabditoidea,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             290 GIAVELNFNFFAAVGNVAATFVTFPGPRLLIVPCVIRLLFIPFFFFSNYLPHSRTMGVLF
                                                                                                      3 IINRSNTYAVEQEAFPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVE
                                                                                                                                     243 DRPSPSILWTTFINCYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYT
                                                                                                                                                                                                                                                                                                                                                     183 VKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKAET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303 LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        363 ESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
  Length 418;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dobson R.; Submitted (DEC-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           elegans.";
Nature 368:32-38(1994).
ENEL; Z68303; CAA22642.1; -.
InterPro; IPR002259; DER_Nucleoside_tran.
Pfam; PP01733; Nucleoside_tran; 1.
ProDom; PD005103; DER_Nucleoside_tran; 1.
ProDom; PA005103; DER_Nucleoside_tran; 1.
ProDom; Af1 AA; 52050 MW; CD0F115AF6A12A76 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
Last sequence update)
Last annotation update)
                                                    135;
35.0%; Score 802; DB 5; 37.6%; Pred. No. 2.8e-45;
                                                    84; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Nematoda; Chromadorea;
Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01,
07,
17,
                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-NOV-1996 (TrEMBLrel.
01-AUG-1998 (TrEMBLrel.
01-JUN-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Caenorhabditis elegans.
                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=6239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZK809.4 PROTEIN.
                                                    156;
                              Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZK809.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            023599
```

8;

```
ProDom; PD005103; DER_Nucleoside_tran; 1.
SEQUENCE 450 AA; 50495 MW; CF3973D5EE517909 CRC64;
                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09VMB6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    O9VMB6
 SOR
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                             Ωy
                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                           οy
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=94150718; PubMed=7906398;
Milson R., Ainscough R., Anderson K., Baynes C., Berks M.,
Wilson R., Ainscough R., Connell M., Copsey T., Cooper J., Coulson A.,
Craxton M., Dear S., Du Z., Durbin R., Favello A., Fulton L.,
Gardner A., Green P., Hawkins T., Hillier L., Jier M., Johnston L.,
Jones M., Kershaw J., Kirsten J., Laterille P.,
Lightning J., Lloyd C., Memurray A., Mortlimore B., O'Callaghan M.,
Parsons J., Percy C., Rifken L., Roopra A., Saunders D., Shownkeen R.,
Smaldon N., Smith A., Sonnhammer E., Staden R., Sulston J.,
Thierry-Mieg J., Thomas K., Vaudin M., Vaughan K., Waterston R.,
Watson A., Weinstock L., Wilkinson-Sproat J., Wohldman P.;
2.2 Mb of contiguous nucleotide sequence from chromosome III of C.
                                                                                                                             1 TGVVTGYPTVYSSNFQSFQT1ASQVPNLLLNLLNLFIVVKGGLASRI--TVGLSIVAVCV 128
                                                                                                                                                                                        115 ILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNN 174
                                                                                                                                                                                                                           175 ICGLLITVVKI---GVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ 231
                                                                                                                                                                                                                                                                                      287
                                                                                                                                                                                                                                                                                                   288 G-----FLNKIMSENDEI----YTLLTSFLVFNLFAAIGSIVASKIHWPTPRYLK 333
                                                                                                                                                                                                                                                                                                                                                        305 GVYDFPLPRQFFINSLEIHNREFSEKYEMDVTTFLQFNVFAFIGSIVAGRKQWPAPNKLW 364
                                                                                                                                                                                                                                                                                                                                                                                                  334 FAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNV 393
                                                                                                                                                                                                                                                                                                                                                                                                                  365 IPVYLRLLYIPFFIFCNYLPETRSLPVFFESTWLFVIIAASMSFGSGYFSGLAMMYTSKT 424
                                                                                                              60 -----GVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTI 114
                             Gaps
                                                                      Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea;
Rhabditidae; Peloderinae; Caenorhabditis.
NCBL_TaxID=6239;
                                                       7 SNTYAVEQEA-FPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPD----- 59
                                                                                                                                                                                                                                             189 LCGTFVTLLSMSTKAVTRNILDR----SFAYFSIALITLVFCFISFHILKKQRFYQYYST
                                                                                                                                                                                                                                                                                    232 KGMEIREK---AETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFP-VMMTVTTRGDS
                             39;
 Length 461;
                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Swinburne J.;
Submitted (AUG-1996) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last sequence update)
Last annotation update)
 DB 5;
                             86; Mismatches 167;
              Pred. No. 1.2e-39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | :: | :: |:::| | 425 VDPSKAQVAGMMAGFFLISGIVSGLIFTMVIKMVV 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                        394 VPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
31.2%; Score 716.5; 35.8%; Pred. No. 1.2e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nature 366:32-38(1994).
EMBL; 279601; CAB01882.1; -.
InterPro; IPR002259; DER_Nucleoside_tran.
Pfam; PF01733; Nucleoside_tran; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         450 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    02,
02,
17,
                           Matches 163; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-FEB-1997 (TrEMBLrel.
01-FEB-1997 (TrEMBLrel.
01-JUN-2001 (TrEMBLrel.
K09A9.3 PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Caenorhabditis elegans.
              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          elegans.
                 Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        093871;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             K09A9.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         093871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
Q93871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                         δλ
                                                                                   a
                                                                                                              ò
                                                                                                                                                                     δλ
                                                                                                                                                                                                 g
                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                  à
```

```
ANAINTENERLERY,
Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
Adamstides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
Amaratides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
Antaritides P.G., Scherer S.E., Li P.W., Hoskins R.A., Gelier B.D.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
Besson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
Borkova D., Botchan M.K., Bouck J., Brokstein P., Brottler P.,
A brits K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
A de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
A de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
A hodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Arthropea; Tacheata; Hexapoda; Insecta; Pterygota; Neoptera; Endproperygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                    353 VQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMV 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     373 PETRILPVFFESTWLFIIVAASMSFGSGYFSGLSMMYTSKTVDPSKAQVAGMMAGFFLIS 432
                                                                                                                                                                                                                                                               60 GVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILV 119
                                                                                                                                                                                                                                                                                                                                                                                              120 IVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLL 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       293 IMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYR 352
                                                                                                                                   59
                                                                      Gaps
                                                                                                                                                                       21 VEEETPEPEDKGNLVFYIILHGIGTLMPWNMLITISYDYFESYKMLANSTIDMDTGKVT
                                                                                                                                                                                                                                                                                                                                                                                                                                   :|::: || : || : || :|:::: || 109 VTLLSMSTKAVTRNILDR----SFAYFSIALITLVFCFISFHILKKQRFYQFYSTRAERQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        237 R---EKAETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFP-VMMTVTTRGDSGFLNK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180 ITVVKI---GVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEI
                                                               27;
   Length 450;
                                                                      Indels
                                                                                                                                   12 VEQEA-FPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWF---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seguence update)
      DB 5;
                                                                   88; Mismatches 164;
36.0%; Score 706.5; DB 5
36.0%; Pred. No. 5.5e-39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                458 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila melanogaster (Fruit fly).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAY-2000 (TrEMBLrel. 13, 01-MAY-2000 (TrEMBLrel. 13, 01-JUN-2001 (TrEMBLrel. 17, CG11045 ppomer.
                                    Best_Local Similarity 36.0%
Matches 157; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        433 GIVSGLIFTMVIKFVV 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   413 GLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CG11045 PROTEIN.
BEST:LD04971 OR CG11045.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-BERKELEY;
```

Rhabditoidea;

```
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida;
Rhabditidae; Peloderinae; Caenorhabditis.
                                          Caenorhabditis elegans.
                                                                                                                       SEQUENCE FROM N.A.
           KOZE11.1 PROTEIN.
                                                                                         NCBI_TaxID=6239;
                                                                                                                                                                                                                                                                                                                                                                                                  elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q99P65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q99P65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q99P65
           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DA PP PP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
RA Durbin K.J., Evangelista C.C., Ferraz C., Ferriera S., Fleischmann W., RA Gode K., Gong F., Gargn N.S., Gelbart W.M., Glasser K., RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gunn P., Harris M., Harrey D., Heiman T.J., Hernandez J.R., Houck J., RA Harris N.L., Harrey D., Heiman T.J., Weil M.-H., Ibegwam C., RA Jalai M., Kalush F., Karpen G.H., Kravitz S., Kulp D., Lai Z., Ketchum K.A., Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z., Liang Y., Lin X., Mattei B., McIntosh T.C., McLeod M.P., McDherson D., Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A., Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A., Merkulov G., Milshina N.V., Mobarry C., Morris J., Woshrefi A., Merkulov G., Milshina N.V., Mobarry C., Morris J., Woshrefi A., Melson B.M., Nelson D.L., RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G., Rehert K., Saden Kiamos I., Simpson M., Stupski M.P., Smith T., Shue B.C., Siden Kiamos I., Simpson M., Stupski M.P., Smith T., Mang L.Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Wang S., Ya Walilams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A., Kheng X., Wenger E.W., Rubin G.M., Venter J.C.; Shu X., Smith H.O., Rheng X.A., Myers E.W., Rubin G.M., Venter J.C.; Shu X., Smith H.O., Rheng X.A., Myers E.W., Rubin G.M., Venter J.C.; Purpar G.D., Zhang C., Chenge Sequence of Drosophila melanogaster.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PKDKFLIVFFIFLLHGVGTLMPWNMFIT-AKSYFEDFKFGPNNTVATEVSYRTHFMQNMG 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     192 NDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKAETDRPSPSILW 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNY--RVQTRAYPVFFESTDIFV 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75 IGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLLVIVLEPTEDSMSW--- 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       110 FASQIPNLVFNWLNIFVNFGGDLTTRIVYSIIFEMVILLVTIILAML-----DSSQWPGV 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFL 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTFTNCYGOLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFN 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    339 VFAMLGSLTTSWVQWPGPRFLWVPVVLRLAFIPLFVMCNYVPPDSVRSLAVFIENDWVYW 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPD---GVETWYSKEFMGSLT 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    370 IGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       399 GIGIAMAYSSGYLSSLGMMYAPQTVHTKYQTTAGMYAAAMLITGIFSGVLFSYLGPFFV 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : || || ::::||:| | :::||224 FSSKRTSAIYYEVTAILVLLLCFDTYFALPLNKFFRHYETISRSSEKKSDSKAOLNVPYW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; Score 645; DB 5; Length 458;
; Pred. No. 6.1e-35;
83; Mismatches 178; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PD005103; DER_Nucleoside_tran; 1.
3 458 AA; 51324 MW; 72D36D64CE0D4A2E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR002259; DER_Nucleoside_tran.
Pfam; PF01733; Nucleoside_tran; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  800 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01, Created)
01, Last sequi
17, Last anno
                                                                                                                                                                                                                                                                                                                                                                                             EMBL; AE003614; AAF52405.1; -
Flybase; FBgn0026585; BEST:LD04971.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS; PR01130; DERENTRNSPRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28.1%;
32.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 32.9%
Matches 138; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (01-NOV-1996 (01-JUN-2001 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProDom; PI
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q21145
Q21145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 021145
           RAPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
```

```
MEDLINE-94150718; PubMed-7906398; Milson R., Ainscough R., Anderson K., Baynes C., Berks M., Wilson R., Ainscough R., Anderson K., Eaynes C., Berks M., Wilson Burton J., Connell M., Copsey T., Cooper J., Coulson A., Craxton M., Dear S., Du Z., Durbin R., Fevello A., Fulton L., Gardner A., Green P., Hawkins T., Hillier L., Jier M., Johnston L., Jones M., Kershaw J., Kirsten J., Laister N., Latrellle P., Lightning J., 'Lloyd C., Mcmurray A., Mortimore B., O'Callaghan M., Parsons J., Percy C., Rifken L., Roopra A., Saunders D., Shownkeen R., Smaldon N., Smith A., Sonnhammer E., Staden R., Sulston J., Thomas K., Vaudhin R., Waterston R., Watson A., Weinstock L., Wilkinson-Spraat J., Wohldman P.; "2.2 Mb of contiguous nucleotide sequence from chromosome III of C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             138 GMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKL 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         506 GTIVVLNAANGLEQNSMFGLASPFPFKYTNAVIIGQNFCGTAVTVLSM-LTKAASDDVQM 564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 314 AAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQ--TRAYPVFFESTDIFVIG 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       388 KDLGNYVFFIFMMFGFGALLPWNMFLNISFDYYTMFKLRSADGNATWYSSNFQNSMTISA 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19 RDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFK-PDGVETWYSKEFMGSLTIGS 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLEPTEDSMSWFFWVTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198 VAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       254 FTNCYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 800;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       372 GIAMSFSHGYLSALAMGYTPNVVPSH----YSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
   to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; 4/1003, CALCULTON, TOTAL DEL. NUCLEOSIDE_tran.
InterPro; IPRO02259; DER_Nucleoside_tran.
ProDom; PD005103; DER_Nucleoside_tran; 1.
ProDom; PD005103; DER_Nucleoside_tran; 1.
PROFINCE 800 AA; 90382 MW; E056D51129E4BF45 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 25.0%; Score 574.5; DB 5 Best Local Similarity 32.7%; Pred. No. 4.4e-30; Matches 134; Conservative 88; Mismatches 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel. 17, CTrEMBLrel. 17, ICTEMBLrel. 17, ICTEMBLrel. 17, ICTEMBLrel. 17, ICTEMBLRER. 17, ICTEMBLRER. 17, ICTEMBLRER. 17, ICTEMBLRER. 17, ICTEMBLRER. 17, ICTEMBLRER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; Z77665; CAB01223.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nature 368:32-38(1994).
Submitted (JUL-1996)
                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-JUN-2001
01-JUN-2001
01-JUN-2001
```

10;

Ŋ

13;

65

us-08-816-011f-63.rspt

ò g ð g δ g ò g õ Dp ò g ò g òγ g

```
SEQUENCE FROM N.A.

Wu S.K., Ann D.K., Kim K., Lee V.H.L.;
"Molecular cloning and functional characterization of equilibrative nucleoside transporters (rbENT2 and its constitutively spliced variant rbETN2A) in rabbit.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304 IGMFPAVTVEVKSSIAG----SSTWERYFIPVSCFLTFNIFDWLGRSLTAVFWWPGKDS 358
                                                                                                                                                                                                                                                                                                                                                                                                                                            75 IGSQLP--NASINVFNLFLIIAGPLIYRVFA------PVCFNIVN-----LTIILI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118 LVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICG 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    359 RWLPSLVLARLVFVPLLLLCN -- IKPRRYLTVVFEHDAWFIFFMAAFAFSNGYLASLCMC 416
                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                        18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVE---TWYSKEFMGSLT 74
   Genomic Seugence of the human Equilibrative Nucleoside Transporter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7 PODRYKAVWLIFFMLGLGTLLPWNFFMT-ATQYFTNRLDMSQNVSLVTAELSKDAQASAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           244 GEQETKLDLISKGEEPRAGKEESGVSVSNSQPTNESHSIKAILKNISVLAFSVCFIFTIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RYLKFAIILRALFIPFFFFCNYRVQTRAY-PVFFESTDIFVIGGIAMSFSHGYLSALAMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --KGMEIREKAETDRPSPSILWTT-----FTNCYGQLFNVWFCFAVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Euteleostomi;
                                                                                                                                                                                                                                                                                                                                     59;
                                                                                                                                                                                                                                                                                                    456;
                                                                                  Indels
                                  Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eut
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
NBMPR-INSENSITIVE NUCLEOSIDE TRANSPORTER EL.
                                                                                                                                                                                                                                                                                         15.0%; SCOLE ... 3.5e-1.,
24.3%; Pred. No. 3.5e-1.,
...a 77; Mismatches 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        389 YTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          417 FGPKKVKPAEAETAGAIMAFFLCLGLALGAVFSFLFRAIV 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                  Query Match 15.0
Best Local Similarity 24.3
Matches 112; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09BG85
                    (henr1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q9BG85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9BG8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                        15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 103 APVCFNIVNLTIILLILVIVLEPTEDSMSW---FFWVTLGMATSINFSNGLYENSVYGVGG 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     53 NYWFKPDGVETWYSKE-----FMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVF 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80 ---YKLRNCSSPASGEDPEDMDILNYFESYLAVASTVPSLLFLVANFLLVNRVQVHVRVL 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GQLFNVWFC----FAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFA 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---ASLGFCAVSLYFVTAFIIPAISTNIQSMHKGTGSPWTS---KFFVPLTVFLLFNFAD 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   315 AIGSIVASKIHWPTPR--YLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIF-VIG 371
                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                           ----PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYV 52
                                                                                                                                    372 GIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             419 TCLLGLSNGYLSTLVLIYGPKIVPRELAEATSVVMLFYMSVGLMLGSACAALLEHFI 475
                                                   Craniata, Vertebrata, Euteleostomi,
Sciurognathi, Muridae, Murinae, Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       251 LSQLEYARYYMRPVAPVRVFSGEDNPSQDAPSASSVAPASRVMHTPPLGPILKKT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----ILWTTFTNCY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Euteleostomi;
Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29
                                                                                                                                                                                                                                                                                                               ; Score 367.5; DB 11; Length 475; Pred. No. 9.9e-17; 83; Mismatches 194; Indels . 77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
EQUILIBRATIVE NUCLEOSIDE TRANSPORTER 1 (SOLUTE CARRIER FAMILY (NUCLEOSIDE TRANSPORTER 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
Graham K.A., Coe I.R., Carpenter P., Baldwin S.A., Young J.D.
Cass C.E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chordata; Craniata; Vertebrata; Primates; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         220 ITKQDFYHYHHQKGMEIREKAETDRPS---PS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  456 AA
 ς.
EQUILIBRATIVE NUCLEOSIDE TRANSPORTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                   Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                   16.0%;
25.8%;
                                                                                                                                                                                                                                                                                                                                  Best Local Similarity 25.8
Matches 123; Conservative
                                                                                                                                                                                                                                                                                                                                                                                         SNTYAVEQEAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                    (Wouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                       SEQUENCE FROM N.A.
                                                                                    NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9606;
                                    Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9UJY2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09UJY2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9UJY2
```

243 271

231

Length 456;

DB 11;

```
Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-JUN-2001
                                                            113;
        Query Match
Best Local S:
Matches 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9BZD2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9BZD2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11
                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
Q9BZD2
                                                                                                                                                                   g
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                       P
                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                            13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGL----LITVV 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   259 GOLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGS 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SLTSYFLWPVENSRLLPLLVRLRFLFVPLFMLCHVPQRAR-LPILFPQAANFIIFMLLFA 404
                                                                                                                                                                                                                                                                                                                                                    ----LTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLEPTEDS 128
                                                                                                                                                                                                                                                                                                                                                                                                      66 FNNWVTLLSQLPLLFTLLNSFLYQCIPEAVRILG----SLLAMLLLFALTAALVKVDVS 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122 PGPFFSITMASAWFINSFCAVLQGSLFGQLGTMPSTYNTLFLSGQGLAGIFAALAMLTSM 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ELETKAELLQCDEKNGVPSSPQKAALTSDVDPEKEPELEPAEPRDPGKPSV-FVVFRKIW 291
                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                              PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEFMGS---- 72
                                                                                                                                                                                                                                                                            7 PRDSYHLVGISFFILGLGTLLEPWNFFITAIP-YFQGRLAGANGTAGALSTNHTGPTDAFN 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-CD1: TISSUE-WHOLE BRAIN;
Kiss A., Farah K., Kim J., Garriock R., Drysdale T., Hammond J.R.;
Wolseular cloning and functional characterization of inhibitor-
sensitive and inhibitor-resistant equilibrative nucleoside transport
protediar from mouse brain.";
Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
EMBL, AF183397. AAF78477.1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus., NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184 KIGVTYFLNDEPKLVAIVYF---GISLVILLVCAIALFFITKQDFYHYHHQK-----GM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TALCLVLVFTVTLSVFPAITAMVTSSTS-----PGKWSEFFNPICCFLLFNVMDWLGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             235 EIREKAE-----TDRPSPSILWTTFTNCY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IVASKIHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMS
                                                                                                                                                                                            83;
                                                                                                                                       Length 456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
EQUILIBRATIVE NITROBENZITHIOINOSINE-INSENSITIVE NUCLEOSIDE
                                                                                                                                                                                         Indels
Submitted (NOV-2000) to the EMBL/GenBank/DDBJ databases. EMBL; AF323951; AAK11605.1; -. SEQUENCE 456 AA; 49858 MW; C6D55FC9D9D2A392 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF0173; Nucleoside_tran; 1.—
PRINTS; PR01130; DERENTRNSPRT.
Prodom; PD005103; DER_NUCLEOSIDE_tran; 1.
SEQUENCE 456 AA; 50255 MW; A9FE7CA037A4468F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            377 FSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                    Score 336.5; DB 6;
Pred. No. 1e-14;
3; Mismatches 195;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MGD; MGI:1345278; Slc29a2.
InterPro; IPR002259; DER_Nucleoside_tran.
                                                                                                                                                                                         68;
                                                                                                                                    Similarity 24.9%;
5; Conservative 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSPORTER ENT2.
SLC29A2 OR ENT2.
Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                    Query Match
Best Local Simi
Matches 115; (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97IL60
                                                                                                                                                                                                                                              18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              346
                                                                                                                                                                                                                                                                                                                                                                                                                                                             129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  405
        RL
DR
SQ
                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SO DE RESERVED DE SO DE 
                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15;
                                                                                                                                                                                                                                                                                                 TDTFNFNNWVTLLSQLPLLLFTLLNSFLYQCIPESVRILG----SLLAILLLFALTAALV 116
                                                                                                                                                                                                                                                                                                                                                                                                                         117 KVDLSPGLFFSVTMASVWFINSFCAVLQGSLFGQLGTMPSTYSTLFLSGQGLAGIFAALA 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           231 TQELETKAELLQADEKNGVPISPQQASPTLDLDPEKEPEFEEPQKPGKPSVFVVFRKIWL 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            314 AAIGSIVASKIHWP---TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVI 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVV 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                291 TALCLVLVFTVTLSVFPAITAMVTTSSNSPGKWGLFFNPI------CCFLLFNVM 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --PDGVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYR 100
                                                                                                                                                                                                                                               -----LTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYV 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 SSSLRADQEALLEKLLDRPPPGLQRPEDRFCGTYIIFFSLGIGSLLPWNFFIT-AKEYWM 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hyde R.J., Cass C.E., Young J.D., Baldwin S.A.;
"The ENT family of eukaryote nucleoside and nucleobase transporters:
recent advances in the investigation of structure/function
relationships and the identification of novel isoforms.";
Submitted (DEC-2000) to the EMBL/GenBank/DDBJ databases.
EMBL, AF326987; AAK009581; --
SEQUENCE 475 AA, 51874 MW; 59089BBASC75FA2C CRC64;
                                                                                                                                                             ---EKAETDRPSPSILWTTFTNCYG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QLFNVWFCFAVTLTIFPVM--MTVTTRGDSG----FLNKIMSENDEIYTLLTSFLVFNLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                       18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEFMGS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75;
                                                                  95,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KI-----GVTYFLNDEPKLVAIVYF---GISLVILLVCAIAL-----FFI--
                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FMLLFAVSNGYLVSLTMCLAPRQVLPHEREVAGALMTFFLALGLSCG 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                371 GGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel. 17, Created)
(TrEMBLrel. 17, Last sequence update)
(TrEMBLrel. 17, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14.3%; Score 327.5; DB 4;
Llarity 24.4%; Pred. No. 4.1e-14;
Conservative 83; Mismatches 202;
                               Pred. No. 3.4e-14;
68; Mismatches 191;
14.3%; Score 328.5; 24.2%; Pred. No. 3.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EQUILIBRATIVE NUCLEOSIDE TRANSPORTER 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----TKQDFYHYHHQKGMEIR-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7 SNTYAVEQEAF-----
                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (Human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 116; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        53 NYWFK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TISSUE-PLACENTA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
```

```
SEQUENCE FROM N.A.
STRAIN-CV. COLUMBIA.
Vysotkaia V.S., Schwartz J.R., Toriumi M., Yu G., Kwan A., Oji O.,
Liu S., Li J., Araujo R., Au M., Brendel V., Buehler E., Conway A.B.,
Conway A.R., Dewar K., Feng J., Kim C., Kurtz D., Li Y., Palm C.J.,
Shinn P., Sun H., Davis R.W., Ecker J.R., Federspiel N.A.,
                                                                                                                                                                                                                     Arabidopsis thaliana (Mouse-ear cress).
Eukaryota: Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
Eurosids II; Brassicales; Brassicaceae; Arabidopsis.
183 GSGVLVSLLRILTKAVYPQDPDGLRKSANLYFAVGIVVMVICAVFYNVAHKLPVIKFHEE
                                       KGME--IREKAE-----TDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPVMMTVTTR
                                                                                                                                         PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEFMGSLTIGS
                                                           338 LRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GDSGFLNKIMSENDEIYT-LLTSF----LVFNLFAAIGSIVASKIHWPTPRYLKFAII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 428;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (DEC-1997) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (JUN-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pfam; PF0173; Nucleoside_tran; 1.
Pr00com; PD005103; DER_Nucleoside_tran; 1.
PROSITE; PS00319; AA_TRNA_LISASE_II_2; UNKNOWN_1.
SEQUENCE 428 AA; 46764 WW; B762236C07516DB9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13.7%; Score 313.5; DB 1
23.2%; Pred. No. 3.1e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                   AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL, AC003671; AAC18807.1; -.
InterPro; IPR002106; AA_tRNA_ligase_II.
InterPro; IPR002259; DER_Nucleoside_tran.
                                                                                                                                                                                                                                                                                                                                                                                                                   428
                                                                                                                                                                                                                                                                                             398 YSRFAAQLSVCTLMVGLLTGGL--WPVVI 424
                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      07,
07,
17,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (TrEMBLrel. 0 (TrEMBLrel. 0 (TrEMBLrel. 1
                                                                                                                                                                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-CV. COLUMBIA;
Theologis A.;
Submitted (DEC-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (FEB-1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN=CV. COLUMBIA;
Theologis A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN-CV. COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN-CV. COLUMBIA;
Theologis A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               F1707.13 PROTEIN.
F1707.13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Simil
Matches 100; C
                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                       064603;
                                                                                                                                                                                                                                                                                                                                                                                                                 064603
                                                                                                                                                                                                                                                                                                                                                                            13
                                                                            243
                                       232
                                                                                                                                                        299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18
                                                                                                                                                                                                                                                                                                                                                                          RESULT
064603
                                                                          q
                                                                                                                                                      qq
                                                                                                                                                                                                                                    Dp
                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dp
                                     ò
                                                                                                                   δ
                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Li J., Wang D.; "Cloning and in vitro expression of the cDNA of a putative nucleoside transporter from Arabidopsis thaliana.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-0CT-2000 (TrEMBLrel. 15, Created)
01-0CT-2000 (TrEMBLrel. 15, Last sequence update)
01-0CT-2001 (TrEMBLrel. 17, Last annotation update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
01-JUN-2001 (TrEMBLREL. 17, Last annotation update)
Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123 VPVLDLVYVKGQVGLYAGFDVTSAAVALSGLGDALMQGGLIGVAGEMPERYMQAVVAGTA 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QLPNASINVFNLFLIIAGPLIYRVFAPVCFNI-------VNLTIIL-ILVIVL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----VIYMLVAPVCLFVIVVFYAHKSLASFRINLGLLFVIALLV 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----SMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175 ICGLLITVVKIGVTYFLNDEP---KLVALVYFGISLVILLVCAIALFFITKQDFYHYHHQ 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEFMGSLTIGS 77
                                           VLA-----SLTVILAIFMVITALVKVDTFSWTRGFFAVTIVCMVILSGASTVFSSSIY
                                                                                                                         --FFWVTLGMATSINFSNGLYENSVY
                                                                                            GVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAI
                                                                                                                                                                                                           247 LYLLLSRLEYARYYMRPVLAAHVFSGEE--ELPQDSLSAPSVASRFIDSHTPPLRPILKK
                                                                                                                                                                                                                                                    257 CYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSE--NDEIYTLLTSFLVFNLFA
                                                                                                                                                                                                                                                                                           305 TASLGFCVTYVFFITSLIYPAVCT----NIESLNKGSGSLWTTKFFIPLTTFLLYNFAD
                                                                                                                                                                                                                                                                                                                                315 AIGSIVASKIHWPTP--RYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGG
                                                                                                                                                                                                                                                                                                                                                                     360 LCGRQLTAWIQVPGPNSKALPGFVLLRTCLIPLFVLCNYQPRVHLKTVVFQSDVYPALLS
                                                                                                                                                                          216 ALFFITKQDFYHY------HQKGMEIREKAETDRPSPSI------LWTTFTN
                                                                                                                                                                                                                                                                                                                                                                                                                                     : |:||| ||: || : ||: || 3 || 3 || 420 SLLGLSNGYLSTLALLYGPKIVPRELAEATGVVMSFYVCLGLTLGSACSTLLVHLI 475
                                                                                                                                                                                                                                                                                                                                                                                                               373 IAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 320.5; DB 10; Length 428; Pred. No. 1.1e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AF220759; AAF26446.1; ...
InterPro; IPR002106; AALENA_Ligase_II.
InterPro; IPR002259; DER_Nucleoside_tran.
Pfam; PF01733; Nucleoside_tran; 1.
PRINTS; PR01130; DERENTRNSPRT.
ProDom; PD00510339; AA_TRNA_LIGASE_II.2; UNKNOWN.1.
SEQUENCE 428 AA; 46718 MW; 1433D916FAC93CBI CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          · - · · - · · - ·
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ed. No. 1.1e-13;
Mismatches 169;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        428 AA
                  VFAPVCFNIVNLTIILILVIVLEP - TEDSMSW -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 103; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sest Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 eurosids II; Bra
NCBI_TaxID=3702;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123 EPTED---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             09M5X9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09M5X9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12
                                                     135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28
                101
                                                                                            156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
Q9M5X9
                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                  ò
                                                   g
                                                                                            δ
                                                                                                                               q
                                                                                                                                                                        δλ
                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

11;

DER_Nucleoside_tran; 1. ; 50076 MW; EDE0FDEF5BF3E274 CRC64;

458 AA;

SEQUENCE

ProDom; PD005103;

```
SOR
                                                                                                                               셤
                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                          ŏ
                                                                                                                                                                                 g
                                                                                                                                                                                                           ōλ
                                                                                                                                                                                                                                                                 δλ
                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                      δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Choi D.-S., Messing R.O.; "Alternative splicing variants of equilibrative nucleoside transporter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hammond J.R., Kiss A.J.;
"Molecular cloning of the full-length cDNAs encoding the
introbenzylthiolnosine-sensitive and nitrobenzylthioinosine-resistant
equilibrative nucleoside transporters from mouse brain.";
Submitted (FEB-1999) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                            415
                                                                                                                                                                                                                                                                                                                                                                                                                                             01-0CT-2000 (TrEMBLrel. 15, Created)
01-0CT-2000 (TrEMBLrel. 15, Last sequence update)
01-0CT-2001 (TEMBLrel. 17, Last annotation update)
01-JUN-2001 (TEMBLrel. 17, Last annotation update)
EQUILIBRATIVE NITROBENZYTHIOINOSINE-SENSITIVE NUCLEOSIDE TRANSPORTER
                                                              FWVTLGMATSINFSNGLYENSVYGVGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLN 192
                                                                                                                                                                                                                                                                                           Choi D., Handa M., Young H.M., Messing R.O.; "Genomic organization and expression of mouse equilibrative, nitrobenzylthioinosine-sensitive nucleoside transporter 1 (es-ENT1)
            QLPNASINVFNLFLIIA-----GPLIYRVFAPVCFNIVNLTIILILVIVLEPTEDSMSWF
                                                                               ----LVALVCLFVIVVFYAHKSLASFRINLGLLLFVIALLVVPVLDLVYVKGQVGLYAG
                                                                                                                                                                    243 DRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYT
                                                                                                                                                                                                ------EDVHS
                                                                                                                                                                                                                                                304 ELLTDWYPILLIAAYNVFDLVGKCLTAVFMLEDEKIAVGGSIARLLFYPLFWGCLHG---
                                                                                                                  DEP----KLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGME--IREKAE----T
                                                                                                                                           201 QDPDGLRKSANLYFAVGIVVMVICAVFYNVAHKLPVIKFHEERKNEELIREKSEEKGSLT
                                                                                                                                                                                                                        -LLTSF-----LVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQT
                                                                                                                                                                                                                                                                            RAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (AUG-2000) to the EMBL/GenBank/DDBJ databases. EMBL; AF131212; AAF78452.1; -. EMBL; AF131212; AAF64036.2; -. MGD; MGI:1927073; SLC29a1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                   261 GLAWRTTLWDIVTKVKSHGFGIVLLYMVTLSIFPGYIT----
                                                                                                                                                                                                                                                                                                                                                                                                                       458 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pfam; PF01733; Nucleoside_tran; 1.
PRINTS; PR01130; DERENTRNSPRT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAIN-CD1; TISSUE-WHOLE BRAIN;
                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (AUG-2000) to
                                                                                                                                                                                                                                                                                                                                                       418 SGSVIAWFWVI 428
                                                                                                                                                                                                                                                                                                                              416 TGGL -- WPVVI 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEOUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=129/SVJ1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SLC29A1 OR ENT1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-129/SVJ1;
                                                                                                                                                                                                                                                                                                                                                                                                                                    оэлнго;
                                                                                                                                                                                                                                                                                                                                                                                                                       Q9JHF0
                                                                                                                                                                                                                                                                                                                                                                                               14
            78
                                                                                                                  193
                                                                                                                                                                                                                                                                            356
                                                                                                                                                                                                                        303
                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                             RESULT
Q9JHF0
                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                   셤
                                                              ò
                                                                                      g
                                                                                                                  ò
                                                                                                                                          g
                                                                                                                                                                     ð
                                                                                                                                                                                           Q
                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                       셤
```

```
13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.

STRAIN-CSTBL/GJ; TISSUB-LUNG;

MEDLINE-21085660; PubMed=11217851;

MEDLINE-21085660; PubMed=11217851;

MEDLINE-21085660; PubMed=11217851;

MARAWA T., Hara A., Shibata K., Yoshino M., Itoh M., Ishii Y.,

Alzawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,

Alzawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,

Asito T., Okazaki Y., Gojobori T., Bono H., Masukawa T., Saito R.,

Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,

Racit J., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,

Ruchl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Ouackenbush J.,

Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,

Sakai K., Okido T., Futuno M., Aono H., Baldarelli R., Barsh G.,

Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,

Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,

Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,

A Nordone P., Ringwald M., Rodriguez I., Sakamoto N.,

Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
                                                                                                                                                                                                                                                                                                                                                                                         117 ILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNIC 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   272 LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TP 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            416
                                                                Gaps
                                                                                                                                                                                                                                                            73 LTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFN----------IVNLTIIL 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                         124 LVTAALVKVEMDALIFFVITMIKIVLINSFGAILQASLFGLAGVLPANYTAPIMSGQGLA 183
                                                                                                                                18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEXYVNYW-----FKPDGVETWYSKEFMGS 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184 GFFTSVAMI-CAIASGSELSESAFGYFITACAVVILAILCYLALPRTEFYRHYLQLNLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |:| : | :||:||::| RWLPVLVASRIVFIPILMLCNVKARHCGAQRHHFVFKHDAWFIAFMAAFAFSNGYLASLC
                                                                                                                                                                 66 PTVALPARSSLSAIFNNVMTLCAMLPLLVF--TCLNSFLHQRISQSVRILGSLLAILLVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   243 PAEQETKLDLIREEPKGRREESGVPGPNSPPTNRNQSIKAILKSICVPAL-SVCFIFTVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                302 IGLFP---AVTAEVESSIAG--TSPWKSYFIPVACFLNFNVFDWLGRSLTAVCMWPGQDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                330 RYLKFAIILRALFIPFFFFCNYRVQ---TRAYPVFFESTDIFVIGGIAMSFSHGYLSALA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGME-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -IRE----KAETDRPSP-----SILWTTFTNCYGQLFNVWFCFAVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                61;
Length 458;
                                                                215; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         387 MGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last sequence update)
Last annotation update)
DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         417 MCFGPKKVKPAEAETAGNIMSFFLCLGLALGAVLSFLLRALV
                                 .7e-12;
                                                                82; Mismatches
Score 302.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        458
                                     Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
13.2%;
22.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17,
17,
17,
                                                                Matches 104; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUN-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1200014D21RIK PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus (Mouse)
                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1200014D21RIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUN-2001
01-JUN-2001
   Query Match
                                     Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9DBT8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9DBT8
```

```
13;
Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L., Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S., Hayashizaki Y., Koshida K., Hasegawa Y., Kawaji H., Kohtsuki S., "Functional anotation of a full-length mouse cDNA collection."; Nature 408:685-690(2001).

EMBL, AKO04765, BAB2337.1; -. MGD: MGD: MGI:192357; 1200014DJRik.

InterPro: IPR002259; DER_Nucleoside_tran.

PRINTS; PR01130; DERENTRNSPRT.

PRODOM; PR005103; DERENTRNSPRT.

PRODOM; PR005103; DERENTRNSPRT.

PRODOM; PR005103; DERENTRNSPRT.

SEQUENCE 458 AA; 50018 MW; 01F300DEBB4FA0C6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302 IGLFP---AVTAEVESSIAG--TSPWKSYFIPVACFLNFNVFDWLGRSLTAVCMWPGQDS 356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |:| : |:|| | :||| | | | : | : | | : | | :|||:|||::| | RWLPVLVASRIVFIPLIMLCNVKARHCGAQRHHFVFKHDAWFIAFMAAFASGNGYLASLC 416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73 LTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFN-------IVNLTIIL 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 PTVALPARSSLSAIFNNVWTLCAMLPLLVF--TCLNSFLHQRISQSVRILGSLLAILLVF 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            117 ILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNIC 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243 PAEQETKLDLIREEPKGRREESGVPGPNSPPTNRNQSIKAILKSICVPAL-SVCFIFTVT 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124 LVTAALVKVEMDALIFFVITMIKIVLINSFGAILQASLFGLAGVLPANYTAPIMSGQGLA 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGME- 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  272 LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TP 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RYLKFAIILRALFIPFFFFCNYRVQ---TRAYPVFFESTDIFVIGGIAMSFSHGYLSALA 386
                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                       18 PRDKYNIVYWLVILVGFGVLLPWNMFITTAPEYYVNYW----FKPDGVETWYSKEFMGS 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----IRE----KAETDRPSP-----SILWTTFTNCYGQLFNVWFCFAVT
                                                                                                                                                                                                                                                                                                                                                                     61;
                                                                                                                                                                                                                                                                                                                      13.2%; Score 302.5; DB 11; Length 458; 22.5%; Pred. No. 1.7e-12;
                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | : | ; : : | : | 38 | CFGPKKVKPAEAETAGNIMSFFLCLGLALGAVLSFLLRALV 458
                                                                                                                                                                                                                                                                                                                                                                   82; Mismatches 215;
                                                                                                                                                                                                                                                                                                                      Query Match 13.28
Best Local Similarity 22.55
Matches 104; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            417
         RA RA RA DR DR DR DR DR DR DR DR SQ
                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ОD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

Search completed: February 27, 2002, 17:03:21 Job time: 202 sec THIS PAGE BLANK (USPTO)

166494 Sequence 14 Z79601 Caenorhabdi AL034559 Plasmodiu AF151733 Dictyoste AF151111 Dictyoste AC005170 Arabidops X59536 S.cerevisia M1449 Yeast mitoc L36897 Saccharomyc

ACO04247 Drosophil ACO04247 Drosophil AE003614 Drosophil 268268 Caenorhabdi 268363 Caenorhabdi

AC092230 AE003614 CEF44D12 CEC47A4 CEZK809 166494

900.8 900.8 900.8 84.8 71.2 70.8 68 68 47.8 44.6

64674 174376

Description

Length DB

Match

Result

AC01246 Drosophil
AC007440 Drosophil
AC007440 Drosophil
AC007440 Drosophil
AC007440 Drosophil
AC003823 Drosophil
Continuation (4 of
AX083744 Sequence
AL161711 Caenorhab
AL031228 Human DNA
AR139082 Haematobi
AC005504 Plasmodiu
AC005504 Plasmodiu
AC005504 Plasmodiu
AC004157 Plasmodiu
AC004157 Plasmodiu
AC04157 Plasmodiu
AC04157 Plasmodiu
AC04157 Plasmodiu
AC04159 Drosophil
AC064351 Drosophil
AC064351 Drosophil
AC004359 Drosophil
AC004359 Drosophil
AC004359 Drosophil
AC003221 Drosophil
AC003281 Brosophil
AC012494 Homo sapi

PFMAL13P2_3 AX083744

HS1033B10 AF139082

CEY10G11

PFMAL4P3 AC005504 AC004157

321003 104992 169546

44400

SPAC1856 SPAC1856 AC084352

PEMAL4P3 AC017951 AC004439

64248

321003

AC092221

170868 306352

YSCMTORIK YSCMTCG13

2559464 406853 11853 4068 25560 37218 37218 3985 110211 10211 1021153 85779 11155779 1185779 1185779 1185779 1185779 1185779 1185779 1185779

SCE011856 AC007440 AE003823

CEK09A9 PFMAL3P7 AF151733 AF151111 AC005170 SCORI7

Plasmodiu Arabidops Arabidops 228297 S.cerevisia

AC007894 A AC018460 A AC006281 P AE001394

```
Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          U55376/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      rocus
                         O
                                                                                      (without alignments)
16993.770 Million cell updates/sec
                                                                       Search time 1347.44 Seconds
                                                                                                                                      1388
1 atggtaataatkaaccgatc.....ttattaaaaaaaaaaaaa 1388
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                   1472140 segs, 8248589755 residues
                                                                          ٠.
                                                                       February 27, 2002, 23:22:38
                                                                                                                                                                                                                                                                                                                                       first 45 summaries
                                                - nucleic search, using sw model
                                                                                                                                                                            IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_vi:*
em_htgo_hum:*
em_htgo_inv:*
em_htgo_loo:*
em_htgo_hum:*
em_htgo_loo:*
                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0% Maximum Match 100%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       em_htg_rod:*
em_htg_other:*
                                                                                                                      US-08-816-011 1-36
                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gb_sy:*
gb_un:*
gb_vi:*
em_ba:*
em_fun:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_pat:*
em_ph:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_sts:*
em_sy:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_hum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_sts:4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                еш_un:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_ro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 em_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_om:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         em_or:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     em_ov:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            em_pl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_ro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                     gb_ph:*
gb_p1:*
gb_pr:*
                                                                                                                                                                                                                                                                                                                                                                          gb_ba:
gb_htg:
gb_in:
gb_om:
                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_pat:
                                                                                                                                                                                                                                                                                                                                                                Gen Emb1
                                                                                                                                         Perfect score:
                                                                                                                                                                             Scoring table:
                                                OM nucleic
                                                                                                                                                                                                                                                                                                                                                                Database :
                                                                                                                                                                                                                   Searched:
                                                                                                                                                     Sequence:
                                                                        Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

gans: a platform for sequencing Consortium Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis elegans: The sequence of C. elegans cosmid F16H11 1 (bases 1 to 31049)
The C. elegans Sequencing Consortium.
Genome sequence of the nematode C. elegans sequence of the nematode C. elegansestigating biology. The C. pregraf Science. 282 (5396), 2012-2016 (1998) 2 (bases 1 to 31049) 1998) REFERENCE AUTHORS TITLE JOURNAL MEDLINE REFERENCE AUTHORS TITLE

U55376 31049 bp DNA INV 09-AUC Caenorhabditis elégans cosmid F16H11, complete sequence.

Caenorhabditis elegans. U55376.1 GI:1280130

ALIGNMENTS

SCYKR0720 AC018460

14923 88512 110619 199551 2206

40... 40... 40...

AC012494

178586

00000000000

us-08-816-011f-36.rge

```
join(21734. .21787,21843. .21909,21958. .22079,24004. .24109,
24156. .24295,24739. .24809,24855. .24966,25036. .25127,
25137. .25257,25305. .25397,25441. .25536,25584. .25751,
26297. .26394,22451. .26593,26649. .26707)
                                                                                                                                                                                                                                                                                           /translation="MRRARTAFTYEQLVALENKFKTSRYLSVVERLNLAIQLQLSETQ
VKIWFQNRRTKWKKHNPGQDANTPQTPPSSSDETQIQPILPANPITSFSSLLLPPIISP
ANSAVLQGTSIPLTLENLNQILMPQNVGFN"
complement(10470. .14006)
/gene="P16H11.5"
/note="nhr-45"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DESHFRLAGMLVVVLGITVAFVFYAFTREPTNYRRFSRLNSFSSDASELVRMHWTSWF
GHQOFYQIALLYMLSRLY INISQVYEPKYITMYQNYEKKYALLPMYAYLSSFSVSMV
NSLPVVSKLISKILIYSFGLASGMLSCAVMMLDLPGWKIYALAVGIGIAQAILLITSLS
ITADLINKNTESGAFVYGAMSFPDKLSNGTAYOLIEUMTPAYDALKHHEVSAIFYRRV
MVFVPGTCLVLAFLVLLSLAPFKIGERRRARPEDEQAIMEDQDDIYPEIVE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /trānslation="mthfsInrtlefsEtTsKISMSCLVCETDAHGOHFGIRCCRAC
ARFERRTLYMILRYEQREDSHEADSHERRYSPGCRCERZEKVRVGMRKDNLTSPYSVVO
NASFTERDSSGNETDSIGHSPHSSLESYTCRPSFEQQQQNONDRDPPLLMGNGTFVO
EVASDAYQPNSDMHQLNFSFHRTVIEEVGRAVMPTPPFQQPPIHIPQPFDYQYTDLLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TDEONSSÄIPSSETTYNOVPOEYNNESGNONOMFAMAAOOATODLHVNVONVLTPTID
AMFGOPPDAFCQLPDIPLTLCQQALLAYREHNKOWPDQDKMIENVPLDMENFWRNHYI
EIEHIARFCMSIRVFAQLPKDQKWIIFKHFWTRFYELDRCFATCQRLGYNLTDERGLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FYNDLCASMWFTYFMIYMEKVLKFQSSRAGMLMLIGQVTDAISTPLVGIFSDSNILPA
CFDKIGRRMSWHLIGTVLVSLSFPMIFNKCFLCKSTTSEWLKVLWFVPFIMVFQFGWA
SVQISHLALIPELSSVPASRATMNSLRYAFTVIANLSVYFALAWLLSESTGHTSIGPW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(join(10470, .10481,10529, .10624,10701, .10861, 10907, .11025,11086, .11396,11509, .11613,12150, .12431, 13147, .13430,13566, .13631,13796, .14006))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LNGQIINFGISVVKLENISDMDATQVRNFLKGSMDKFRLIFINPFKKLQPTEYELMYM
MMSIMWSVSNLPGITDATRDISEKVELRLAEDLHTYYAEQYDNNNPNYAGRITRLSSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="Hypothetical protein F16H11.1"
/protein_id="AAAA98007.1"
/db_xref="G1:1280135"
/translation="MTDEETEGDVVPVRSCDDIVIPRRSIRPDHDISFTKKIAFGIGH
                                                                                                           ceh-1 (GB:X52810)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="contains a zinc finger of the C4-type; coded fo
the following C. elegans cDNAs: yk347g3.3, yk347g3.5"
/codom_start=1
/product="Hypothetical protein F16H11.5"
/db_xref="G1:1280133"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
.7253,7307. .7456,7505. .7573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 31049;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="similar to melibiose carrier protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        following C. elegans cDNAs: cm01e2, cm21e6"/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (thiomethylgalactoside permease II); coded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ASAVDEITERKREDSQVSKTFNIFKNDFFFSDLTDFPCLN"
16440. .16613
/gene="F16811.2"
/gene="F16811.2"
/gene="F16811.2"
/codon_start=1
                                                                                                                                                                    /product-"Hypothetical protein F16H11.4"
/protein_id="AAA98004.1"
/db_xreff="G1:1280132"
                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="Hypothetical protein F16H11.2"
/protein_id="AAA99006.1"
                                                                                                           /note="C. elegans unknown homeobox
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 1012; DB 3;
Pred. No. 3.3e-251;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5591 g 10234 t
   complement (join (7137.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="GI:1280134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21734. .26707
/gene="F16H11.1"
                                          7621. .7683))
/gene="F16H11.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REREREKESNRKR"
                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    72.9%;
82.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5100 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="Hypothetical protein F16H11.3"
/product="Hypothetical protein F16H11.3"
/product="AAA98003.1"
/db_xref="G1:1280131"
/db_xref="G1:1280131"
/db_xref="G1:1280131"
/db_xref="G1:1280131"
/db_xref="G1:1280131"
/ranslation="MVINTNAVEQEAFPRDKYNIVYMLVILVGFGVLLFWNFITAAFEYVNWFKFDGVEWYFRENGYTTAAFEYNWFGVGVLFWNFITTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETTAAFETT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This sequence was finished as follows unless otherwise noted: all regions were double stranded, sequenced with an alternate chemistry or covered by high quality data (i.e., phred quality >= 30); an attempt was made to resolve all sequencing problems, such as compressions and repeats; all regions were covered by sequence from more than one ml3 subclone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Coding sequences below are predicted from computer analysis, using the program Genefinder(P. Green and L. Hillier, ms in preparation). Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IICE: This sequence may not be the entire insert of this clone. may be shorter because we only sequence overlapping sections ie, or longer because we provide a small overlap between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   St.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2500
1 of
                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
Submitted (09-MUG-2001) Department of Genetics, Washington
University, Genome Sequencing Center, 4444 Forest Park Avenue,
Louis, MO 63110, USA
Submitted by:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(1239, .2839)
/gene="F16H11.3" .2839)
/gene="F16H11.3" .1868,1421 .1617,1669 .1878,
1932 .2131,2180 .2466,2516 .2649,2693 .2839))
/gene="F16H11.3" /fonce="weak similarity to HNP36 protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The 5' cosmid is C46C11, 200 bp overlap; 3' cosmid is K02G10, bp overlap. Actual start of this cosmid is at base position CELF16H11; actual end is at 10112 of CELK02G10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genome Sequencing Center.
Department of Genetics, Washington University
St. Louis, MO 63110, USA, and
Sanger Centre, Hinxton Hall
Cambridge CB10 IRQ, England
email: rw@nematode.wustl.edu and jes@sanger.ac.uk

    31049
    organisma"Caenorhabditis elegans"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NEIGHBORING COSMID INFORMATION
                                                                                                                                                                                                                  Waterston, R.
Direct Submission
Submitted (18-APR-1996) Robert Waterston
5 (bases 1 to 31049)
Waterston, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(7137. .7683)
/gene="F16H11.4"
/note="ceh-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /strain="Bristol N2"
/db_xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="F16H11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /chromosome="X"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               neighboring submissions
                                      (bases 1 to 31049)
                                                                                                                                                                                (bases 1 to 31049)
                                                                    Waterston, R.
Direct Submission
Unpublished
   Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTES:
                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                             JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                           JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
```

 \sim

Oy 888 aaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgat 947	1017 tgctctttcattccattcttcttcttctgcaactatcgtgtccagacggtgcttatcc	0y 1176	RESULT 2 AC019610 LOCUS LOCUS DEPINITION Drosophila melanogaster, *** SEQUENCING IN PROGRESS ***, in ordered pleces. ACCESSION AC019610 VERSION AC019610. IG:6665287 KEYWORDS fruit fly. COURCE	ψ
Matches 1371; Conservative 0; Mismatches 5; Indels 296; Ga attaches 1371; Conservative 0; Mismatches 5; Indels 296; Ga attached accordance of 1 atgrataatcaaccgatcgaacactatgcgatcgagagagagag	ATGTTCATTACTATCGCCCagtattatgtgaat	0y 282tggtcccctgatctaccgcgtctttgctccggtttgcttcaacatcg 328	Oy 509 tgattggaaacaacatttgcggattgctgataacggttgtgaaaatcggagtgacctatt 568	701 tggaaattgggaaacggaaacggacgacgtccatccattctttggaccacat 1999 TGAAATTGGGAAAAGGGGAAACGGAGAGGCGTCTCCATCCA

```
/organism="Drosophila melanogaster"
/db_xref="taxon:7227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .64674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                               RESULT 3
AC004247/c
                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                         LOCUS
             qq
                                        ò
                                                                 g
                                                                                                                     q
                                                                                                                                                ò
                                                                                           ò
                           5
                                                                                                                                                                                                                                                                                          7402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7693
                                                                                                                                                                         ----GTAGGCCCGGACTACTTTACACTGGTCACTTGCTTCGCGACCTTTAACGTCTTCG 7978
                                                                     7283 GCTTTGCCTCGCAGATTCCTAACCTGGTCTTCAACTGGCTGAACATCTTTGTCAACTTTG 7342
                                                                                                                                                                                                                                                                                                                                                                                                                                               7517 TATACGGAATAGTGGCATCGTTGCCCATCAAGTACACAGGCGCCGTCGTCCTGGGCTCCA 7576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7694 regacaceractrifececrececreaacaagrictreegecacraceagacearragec 7753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ctgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaat 1000
                                                                                                                                                                                                                                                                340
                                                                                                                                                                                                                                                                                                                                                                    460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             640
                                                                                                       107 ttcttctgccatggaatatgttcattactatcgcccc----tgagtattatgtgaatt 160
                                                                                                                                                                                                                                                                                                                                                                                                                        520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           940
                                                     catttccaagagacaagtacaatattgtctactggctcgtcattcttgttggattcggag 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         880
                                                                                                                                                                                                                                                                                                                                                                                   7343 GCGGCGACCTGACCACCCGAATCGTCTACAGCATCATCTTCGAAATGGTCATTCTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161 attggttcaaaccggatggcgtggagacatggtattcgaaagaattcatgggatctttga
                                                                                                                                                                                                               cgattggctcacaactcccaaacgcaagcattaatgttttcaacctgttcctcattattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ctggtcccctgatctaccgcgtcttgctccggtttgcttcaacatcgtcaacctgacaa
                                                                                                                                                                                                                                                                                                                    teatteteateetegteattgttetggageeeactgaagatteeatgteetggtttttet
                                                                                                                                                                                                                                                                                                                                                                    gggtaactcttggaatggcgacttcaatcaattttagcaatgggctatatgaaaactcgg
                                                                                                                                                                                                                                                                                                                                                                                                                       tttatggagttggtggcgattttccgcacacctacattggcgctctttgattggaaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              agcctaaacttgttgcaatcgtctatttcggcatatcgttggtgatccttctggtgtgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                caattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tcacaaactgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tottocotgttatgatgacgttaccactcgtgggattccggcttcctaaacaaatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tgtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7979 CAATGCTGGGCAGTTTAACCACATCGTGGGTGCAATGGCCGGGTCCGAGGTTCCTCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acatttgcggattgctgataacggttgtgaaaatcggagtgacctattttctgaatgatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAGCAGCGAAAAGAAATCTGATTCTAAGGCCCAGCTGAACGTGCCTTACTGGCAGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7874 TTTTCCCGGCGATTCAGTCGAACGTGCACCGCTCCGACCCAAATTCGTA-----
 Length 13429;
Score 90.8; DB 2;
Pred. No. 1.2e-12;
0; Mismatches 632;
 6.5%;
                            Conservative
               Similarity
                Best Local Sim.
Matches 556;
    Query Match
                                                                                                                                                                                                                                                                                                                  341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  701
                                                     47
                                                                                                                                                                                                                                                                281
                                                                                                                                                                                                                                                                                                                                                                                             7457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7924
                                                                                                                                                                                                              221
                                                                                                                                                                                                                                                                                                                                                                   401
                                                                                                                                                                                                                                                                                                                                                                                                                     461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              941
                                                      δ
                                                                                                         ô
                                                                                                                                 g
                                                                                                                                                           ò
                                                                                                                                                                                  q
                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                            Сp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

```
Drosophila melanogaster (Subclones in Sac from Pl clone DS07773

(D154) DNA.

(D154) DNA.

(D154) DNA.

(Drosophila melanogaster

Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;

Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;

Muscomorpha; Ephydroidaa; Drosophilidae; Drosophila.

1 (bases 1 to 64674)

Celniker, S.E., Aghavani, A., Arcaina, T.T., Baxter, E., Blazej, R.G.,

Chew, M., Doyle, C.M., Farfan, D.E., Flanagan, J., Houston, K.A.,

Hummasti, S.R., Karra K., Karra K., Moshrefi, A., Lee, B.,

Lomotan, M.A., Mazda, P., Mok, M.S., Moshrefi, A., Lee, B.,

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

and Kimmel, B.

Sequencing of Drosophila chromosome 2L, region 26F1-26F4

Unpublished (1997)

Clew, M., Doyle, C.M., Farfan, D.E., Flanagan, J., Houston, K.A.,

Hummasti, S.R., Karra, K., Kearney, L., Kim, S.H., Lee, B.,

Lomotan, M.A., Mazda, P., Mok, M.S., Moshrefi, M.,

Hummasti, S.R., Karra, K., Kearney, L., Kim, S.H., Lee, B.,

Lomotan, M.A., Mazda, P., Mok, M.S., Moshrefi, A., Lomotan, M.A., Mazda, P., Mok, M.S., Pfeiffer, B., Punch, D., Snir, E.,

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zhang, R.,

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., Wan, K.H., Whitelaw, K.R., Yee, A., Zhang, R., Zieran, L.L.

Twomey, B., 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Berkeley, CA 94720
For further information about this sequence, including its location
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Library location: 136_81.

This Pl was assembled from the following subclones: 1_b4, 2_b6, 2_d8, 1_h5 (AC003251), 1_C1, 2_e1, 1_f2, 1_g4 (AC003249), 1_g6 (AC003250), 2_C9 (AC003252), 1_f12 (AC003248), 1_h9, 2_e9, 1_a5, 2_e3, 1_e12 (AC003247), 2_h1, 2_b12, 1_a12 (AC003761), 1_g3, 1_g12, 2_e7, 1_c8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AC004247 64674 bp DNA INV 01-MAR-1998
Drosophila melanogaster (Pl DS07773 (D154)) DNA sequence, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (http://fruitfly.berkeley.edu/sequence-archive.html) or send email to drosophila@genome.lbl.gov.
1175 acgregicgitecatectacteargaittigecgeteageittecgittigeaetettatgg 1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence.
AC004247 AC003251 AC003249 AC003250 AC003252 AC003248 AC003247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and relationship to other sequences, please visit our sequence archive Web site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (18-FEB-1998) Berkeley Drosophila Genome Project, M
64-121, Lawrence Berkeley National Laboratory, One Cyclotron
                                                                                                                                                                                                                                                           1115 gaattgccatgtctttttcacatggatacctcagcgctctggcaatgggatacactccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Berkeley, CA 94720, US
Sequence submitted by:
Berkeley Drosophila Genome Project
Lawrence Berkeley National Laboratory, MS 64-121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8279 CGGCCATCTTCTCCGGAGTGCTGT 8302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1235 ttggccttctcaccggtggcctgt 1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AC003761
AC004247.1 GI:2920811
```

2

5;

59508 -----GTAGGCCCGGACTACTTACACTGGTCACTTGCTTCGCGACCTTTAACGTCTTCG 58872 59448 58977 TTACCATTATTTTGGCCATGCTCG-----ACTCCTCGCAGTGGCCGGGCGTCTTCTTCT 59394 59274 59214 AG---AGGACTTCGGCCATCTACTACTTCGTGACCGCCATCCTAGTGCTGCTGCTGCTGCT 59156 TCGACACGTACTTTGCGCTGCCGCTGAACAGTTCTTCCGGCACTACGAGACCATTAGCC 59097 59037 941 ctgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaat 1000 580 640 940 cgattggctcacaaacttccaaacgcaagcattaatgttttcaacctgttcctcattattg 280 gggtaactcttggaatggcgacttcaattcaattttagcaatgggctatatgaaaactcgg 460 tettecetgttatgatgacegttaccactegtggagatteeggetteetaaacaaaatta 880 .107 ttcttctgccatggaatatgttcattactatcgcccc----tgagtattatgtgaatt 160 ctggtcccctgatctaccgcgtctttgctccggtttgcttcaacatcgtcaacctgacaa 340 47 catttccaagagacaagtacaatattgtctactggctcgtcattcttgttggattcggag 106 59567 GCTTTGCCTCGCAGATTCCTAACCTGGTCTTCAACTGGCTGAACATCTTTGTCAACTTTG caattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaa 59507 GCGCCGACCTGACCACCCGAATCGTCTACAGCATCATCTTCGAAATGGTCATTCTGCTGG agcetaaacttgttgcaatcgtctatttcggcatatcgttggtgatccttctggtgtgtg 59096 GGAGCAGCGAAAAGAAATCTGATTCTAAGGCCCAGCTGAACGTGCCTTACTGGCAGATCT 59036 TCAAGAAAGCAGCGCCCCAACTATTCAACATCTTCCTCACGTTTTTCGTCACGTTGTCGG tgtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcg 59687 CGCTGATGCCATGGAACATGTTCATCACGCCCAAGTTCGAGGACTTCAAGTTCG attggttcaaaccggatggcgtggagacatggtattcgaaagaattcatgggatctttga tcattctcatcctcgtcattgttctggagcccactgaagattccatgtcctggtttttct GGACCACCATGGTGTGTGTTGTTTAAACGTGTGCAACGGCATCTACCAGAACACCA tttatggagttggtggcgattttccgcacacctacattggcgctctcttgattggaaaca acatttgcggattgctgataacggttgtgaaaatcggagtgacctattttctgaatgatg ACATCAGCGGCTGCTTCACCACCGCCATGGCCTTGATATGCGGTGAGATCTTCTCGTCCA tggaaattcgcgaaaaggcggaaaccgacagaccgtctccattctttggaccacat tcacaaactgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaa 58976 TTTTCCCGGCGATTCAGTCGAACGTGCACGCTCCGACCCAAATTTCGTA-----Length 64674; Indels 632; DB 3; = = = -1.5e-12 (D154)" 18362 t 0; Mismatches Score 90.8; Pred. No. /clone="Pl DS07773 13758 c 13808 g /map="26F1-26F4" /chromosome="2L" 6.5%; Conservative Similarity Ø 18746 Matches 556; Query Match Best Local BASE COUNT 581 821 461 641 701 59273 59213 761 881 161 401 521 58926 59627 221 281 341 59447 59393 59333 g g qq pp අු g οy QQ δλ g õ οq δ 셤 ò a ŏ g ò qq ò δ ò ò qq ò ò δy ŏ ò

S celniker, S.E., Adams, M.D., Kronmiller, B., Tyler, D., Wan, K.H., Holt, R.A., Evans, C.A., Gocayne, J.D., Amanatides, P.G., Brandon, R.C., Rogers, Y., An, H., Baldwin, D., Banzon, J., Beeson, K.Y., Busam, D.A., Carlson, J.W., Center, A., Champe, M., Davenport, L.B., Dietz, S.M., Dodson, K., Dorsett, V., Doup, L.E., Cayle, C., Dresnek, D., Farfan, D., Ferriera, S., Frise, E., Galle, R.F., Garg, N.S., George, R.A., Gonzalez, M., Hoskins, R.A., Hostin, D., Howland, T.J., Isleywam, C., Jalli, M., Kruse, D., Li, P., Mattei, B., Moshrefi, A., McIntcosh, T.C., Moy, M., Murphy, B., Nelson, C., Nelson, K.A., Nuco, J., Phousienavong, S., Pittman, G.S., Patel, S., Pfeiffer, B., Scheeler, F., Stapleton, M., Strong, R., Svirskas, R., Tector, C., Williams, S.M., Zaveri, J.S., Smith, H.O., Rubin, G. M. and Venter, J.C. Celniker's E. Adams, M. D., Kronmiller, B., Tyler, D., Wan, K. H., Steins, C. A., Gocayne, J. D., Amanatides, P. G., Brandon, R. C. A., Gocayne, J. D., Amanatides, P. G., Brandon, R. C. A., Gocayne, J. D., Amanatides, P. G., Brandon, R. Carlson, J. W., Center, A., Champe, M., Davenport, L. B., Dietz, S. M., Dodson, K., Dorsett, V., Doup, L. E., Doyle, C., Dresnek, D., Farfan, D., Ferrieres, S., Frise, E., Galle, R. F., Gargy, N. S., Gocrge, R. A., Gonzalez, M., Houck, J., Hoskins, R. A., Hostin, D., Howland, T. J., Ibegwam, C., Jalali, M., Kruse, D., Li, P., Mattei, B., Moshrefi, A., Marindon, T. C., Malli, M., Murphy, B., Nelson, C., Nelson, K. A., Nunco, J., Pacleb, J., Paragas, V., Park, S., Patel, S., Pfeiffer, B., Phouanenavong, S., Pittman, G. S., Puri, V., Richards, S., Scheeler, F., Stapleton, M., Strong, R., Svirskas, R., Tector, C., Williams, S. M., Zaveri, J. S., Smith, H. O., Rubin, G. M. and Venter, J. C. 64-121, Lawrence Berkeley National Laboratory, One Cyclotron Road, region 26F-27X, BAC clone 58871 CAATGCTGGGCAGTTTAACCACATCGTGGGTGCAATGGCCGGGTCCGAGGTTCCTCTGGG 58812 Submitted (30-JUN-2001) Berkeley Drosophila Genome Project, MS 30-JUN-2001 gigiccagacgogigcitatccigittictitigagictactgacattitiggigatiggig tigccataatcttgcgtgctctttcattccattcttcttcttctgcaacta----tc 58751 CGGACTCGGTGCGCTCATTGGCCGTATTCATCGAGAACGATTGGGTGTACTGGGGCATCG 58691 GCATCGCAATGGCCTACAGCTCCGGGTATCTCAGCTCTCTGGGCATGATGTACGCCCGG acglcgtgccatctcactactcaagatttgccgctcagctttccgtttgcactcttatgg gaattgccatgtcttttcacatggatacctcagcgctctggcaatgggatacactccaa Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Inse Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilldae; Drosophila. 1 (bases 1 to 174376) Berkeley Drosophila Genome Project Lawrence Berkeley National Laboratory, MS 64-121 INV Drosophila melanogaster, chromosome 2L, BACR25K24, complete sequence. 58548 DNA 1235 ttggccttctcaccggtggcctgt 1258 AC092230.1 GI:14578111 Drosophila melanogaster Berkeley, CA 94720, US Sequence submitted by: Unpublished 2 (bases 1 to 174376) 174376 bp AC092230 AC092230 DEFINITION ORGANISM TITLE JOURNAL REFERENCE 1001 REFERENCE AUTHORS 1055 1115 1175 TITLE JOURNAL ACCESSION VERSION KEYWORDS SOURCE AUTHORS AC092230 COMMENT RESULT qq Db g a Ωÿ ŏ δ ŏ

```
a
                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                           ò
                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                    _{\dot{\Omega}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δλ
               This sequence was assembled using end sequences from a whole genome shotgun and from subclones of this BAC and its neighboring clones. For further information about this sequence, including its location and relationship to other sequences, please visit our sequence archive Web site (http://www.fruitfly.org/sequence/) or send email to bdgp@fruitfly.berkeley.edu.

Location/Qualifiers

1. 174376

/organism="Drosophila melanogaster"
//strain="y; on bw sp"
//db_xref="taxon:727"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193300 CAGCGCCAAAAGATAAATTCCTTATCGTGTTTATATTCCTGCACGCGTGGGCA 39359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39480 GCTTTGCCTCGCAGATTCCTAACCTGGTCTTCAACTGGCTGAACATCTTTGTCAACTTTG 39539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39654 GGACCACCATGTGTGTTGTTTAAACGTGTGCAACGCCATCTACCAGAACACA 39713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            581 agcctaaacttgttgcaatcgtctatttcggcatatcgttggtgatccttctggtgtgtg 640 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 39834 AG--AGGACTTCGGCCATCTTCGTGACCGCCATCCTGTGCTGCTGCTGCTGCTGCTGT 39890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39420 GACCAAACAACACCGTGGCCACGGAAGTGAGTTACCGCACCCATTTCATGCAAATATGG 39479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       39714 TATACGGAATAGTGGCATCGTTGCCCATCAAGTACACAGGCGCCCGTCGTCCTGGGCTCCA 39773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39951 GGAGCAGCGAAAAGAAATCTGATTCTAAGGCCCAGCTGAACGTGCCTTACTGGCAGATCT 40010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39774 ACATCAGCGGCTGCTTCACCACCGCCATGGCCTTGATATGCGGTGAGATCTTCTCGTCCA 39833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39891 TCGACACGTACTTTGCGCTGCCGCTGAACAAGTTCTTCCGGCACTACGAGACCATTAGCC 39950
                                                                                                                                                                                                                                                                            /map="26F-27X"
/clone="BACR25K24 (D1294)"
/clone=Ib="RPCI-98 (Roswell Park Cancer Institute
Drosophila melanogaster BAC library, partial ECORI in
pBACe3.6)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107 ttcttctgccatggaatatgttcattactatcgcccc----tgagtattatgtgaatt 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                catttccaagagacaagtacaatattgtctactggctcgtcattcttgttggattcggag 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39360 CGCTGATGCCATGGAACATGTTCATCACGCCAAGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           281 ctggtcccctgatctaccgcgtctttgctccggtttgcttcaacatcgtcaacctgacaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39540 GCGGCGACCTGACCACCCGAATCGTCTACAGCATCATCTTCGAAATGGTCATTCTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161 attggttcaaaccggatggcgtggagacatggtattcgaaagaattcatgggatctttga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cgattggctcacaacttccaaacgcaagcattaatgttttcaacctgttcctcattattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              341 tcattctcatcctcgtcattgttctggagcccactgaagattccatgtcctggtttttct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gggtaactcttggaatggcgacttcaatcaattttagcaatgggctatatgaaaactcgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttatggagttggtggcgattttccgcacacctacattggcgctctcttgattggaaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            acatttgcggattgctgataacggttgtgaaaatcggagtgacctattttctgaatgatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  caattgcacttttttttatcacaaagcaagatttctaccactatcaccatcaaaaggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 174376;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     632;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 90.8; DB 3;
Pred. No. 1.7e-12;
0; Mismatches 632;
                                                                                                                                                                                                                                                                                                                                                                                        38138 c 38499 g 49058 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
Berkeley, CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                          ಹ
                                                                                                                                                                                                                                                                                                                                                                                        48681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Simi
Matches 556;
                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 641
                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
Muscomorpha; Ephydrolea; Drosophiliade; Drosophilia;

Adams,M.D., Celniker,S.E., Holt,R.A., Evans,C.A., Gocayne,J.D.,
Amanatides,P.G., Scherer,S.E., Li,P.W., Hoskins,R.A., Galle,R.F.,
George,R.A., Lewis,S.E., Richards,S., Ashburner,M., Henderson,S.N.,
Sutton,G.G., Wortman,J.R., Yandell,M.D., Zhang,Q., Chen,L.X.,
Brandon,R.C., Rogers,Y.H., Blazej,R.G., Champe,M., Pfeiffer,B.D.,
Wan,K.H., Doyle,C., Baxter,E.G., Helt,G., Nelson,C.R., Gabor
Miklos,G.L., Abril,J.F., Agbayani,A., An,H.J.,
Andrews-Pfannkoch,C., Baldwin,D., Ballew,R.M., Beson,K.Y.,
Baxendale,J., Bayraktaroglu,L.D., Bolshakov,S., Borkova,D.,
Botchan,M.R., Bouck,J., Brokstein,P., Botshakov,S., Borkova,D.,
Botchan,M.R., Bouck,J., Brokstein,P., Bottier,P., Burtis,K.C.,
Busam,D.A., Bulter,H., Cadleu,E., Center,A., Chandra,I.,
Cherry,J.M., Cavley,S., Dahlke,C., Davenport,L.B., Davies,P., de
Pablos,B., Delcher,A., Deng,Z., Mays,A.D., Dew,I., Dietz,S.M.,
Dodson,K., Doup,L.E., Downes,M., Dugan-Rocha,S., Duukov,B.C.,
Dunn,P., Durbin,K.J., Evangelista,C.C., Ferraz,C., Ferriera,S.,
Gelbart,W.M., Glasser,K., Glodek,A., Gong,F., Gorrell,J.H., Gu,Z.,
Guan,P., Harris,M., Harris,M.L., Hostin,D., Heiman,T.J.,
Hernandez,J.R., Houck,J., Hostin,D., Houston,R.A., Howland,T.J.,
Wei,M.H., Ibegwam,C., Jalali,M., Kalush,F., Karpen,G.H., Ke,Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AEUU3614 259464 bp DNA INV 04-OCT-2000 DOSOSPHIJA melanogaster genomic scaffold 142000013386055 section of 63, complete sequence. AE003614 AE002690 AE03614 AE012690 AE03614.2 GI:1072RF13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40356 GCATCGCAATGGCCTACAGCTCCGGGTATCTCAGCTCTCTGGGCATGATGTACGCCCCGC 40415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10176 CAATGCTGGGCAGTTTAACCACATCGTGGGTGCAATGGCCGGGTCCGAGGTTCCTCTGGG 40235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1114
                                                                                                                                                                                                                                                                                                                                                                                                                                          ctgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaat 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1175 acgregiscateteactacteagattigeegeteagetticegittigeactetatgg 1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila
tcacaaadtgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaa
                                                                     40011 TCAAGAAAGCAGCGCCCCAACTATTCAACATCTTCCTCACGTTTTTCGTCACGTTGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ttgccataatcttgcgtgctcttttcattccattcttcttcttcttctgcaacta----tc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      grgtccagacgcgtgcttatcctgttttctttgagtctactgacatttttgtgattggtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40296 CGGACTCGGTGCGCTCATTGGCCGTATTCATCGAGAACGATTGGGTGTACTGGGGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1115 gaattgccatgtcttttcacatggatacctcagcgctctggcaatgggatacactccaa
                                                                                                                                                 tetteeetgttatgatgacegttaceaetegtggagatteeggetteetaaacaaaatta
                                                                                                                                                                                                                                                                                                                                          tgtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcg
                                                                                                                                                                                                                       40071. TTTTCCCGGCGATTCAGTCGAACGTGCACCGCTCCGACCCAAATTTCGTA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40476 CGGCCATCTTCTCCGGAGTGCTGT 40499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1235 ttggccttctcaccggtggcctgt 1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fruit fly.
                                                                                                                                                                                                                                                                                            881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
761
                                                                                                                                                                                                                                                                                                                                                                                                                                      941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                 821
                                                                                                                                                                                                                                                                                                                                                                 40121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AE003614
```

```
/map="26D9-26E1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /map="26D9-26E1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="CG13765"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="CG9554"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="cli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transcript"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="cli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
Kennison, J.A., Ketchum, K.A., Kimmel, B.E., Kodira, C.D., Kraft, C., Kravitz, S., Kulp, D., Lai, Z., Lasko, P., Lei, Y., Levitsky, A.A., Li, J., Li, Z., Liang, Y., Lin, X., Mattei, B., McIntosh, T.C., McLed, M.P., McPherson, D., Merkulov, G., Milshina, N.V., Mobarry, C., McIed, M.P., McSheri, A., Mourt, S.M., Moy, M., Murphy, B., Murphy, D.M., Nelson, D.E., Nelson, D.R., Nelson, K.A., Nixon, K., Nusskern, D.B., Pacleb, J.M., Palazzolo, M., Pittman, G.S., Pan, S., Pollard, J., Puri, V., Reese, M.G., Reinert, K., Remington, K., Sunders, R.D., Scheeler, F., Shen, H., Shue, B.C., Siden-Kiamos, I., Simpson, M., Skupski, M.P., Smith, T., Spier, E., Spradling, A.C., Stapleton, M., Strong, K., Sun, E., Svirskas, R., Tector, C., Turner, R., Venter, E., Wang, A.H., Wang, X., Wang, Z.Y., Wassarman, D.A., Weinstock, G.M., Weissenbach, J., Williams, S.M., Woodage, T., Worley, K.C., Wu, D., Zhang, G., Zhao, Q., Zheng, L., Zheng, X.H., Zhong, R.N., Zhou, S., Zhu, X., Smith, H.O., Gibbs, R.A., Myers, E.W., Rubin, G.M. and Venter, J.C. The genome sequence of Drosophila melanogaster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="FLYBASE: FBGT0031826"

/db_xref="fLYBASE: FBGT0031826"

/db_xref="G1:797130"

/translation="MVSLSRTSKLTVACVGVYTTYVLFIFFLLPMLMPDPVTLQRSLV

SYSTSHLGADIRNLTLDAGGQPIRSMLVTFRGSGALTLLDNLAHQPGCYOHYAPLIAVE
SRSIAMKEHHRALALVRODYRKSAEMYQWGMRSPVFRRFYGAARICFRSYSQEA

CWDPFTWAAVCKLYPFINMAVYNLRLNLASLLERKDLNLNTMLLVRDPRGTIYSRNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NKWCSDERDCEAQELCGDMVSDYQMVETLTQAYPQRFSIIRYEDLFLQPDESIKQVFD
FYGLPLERNRTRIQKMHPRSGYFFQSSRWKELSSQSAFEWISEMMVDDIGAVQDVCGQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 259464)
Adams,M.D., Celniker,S.E., Gibbs,R.A., Rubin,G.M. and Venter,C.J.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (21-MAR-2000) Celera Genomics, 45 West Gude Drive, Rockville, MD, USA
On Oct 9, 2000 this sequence version replaced gi:7297129.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .1127,1190. .1366,1421. .>1745)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="FLYBASB:FBan0009550"
/db_xref="FLYBASB:FBgn0031826"
join(538__1127,1190__1366,1421__1745)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1. .259464
/organism="Drosophila melanogaster"
/db_xref="taxon:7227"
/chromosome="21"
join(<538. .1127,1190. .1366,1421.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="CT27016"
/db_xref="FPYBASE:FBan0009550"
/db_xref="FPYBASE:FBgn0031826"
/dene="CG9550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="FLYBASE:FBan0009551"
/db_xref="FLYBASE:FBgn0031827"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="FLYBASE:FBan0009551"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        db_xref="FLYBASE:FBan0009550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMDLWGYRSIQDFNHFSPESFQPIMDKAY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="FLYBASE:FBan0009551"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db_xref="FLYBASE:FBgn0031827"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="CG9550 gene product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="CG9551 gene product"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="CT27018"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /map="26D7-26D9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /map="26D7-26D9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2069. .>3227
/qene="CG9551"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="CG9551"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="CG9550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="CG9550"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="CG9551"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20196006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
```

```
/evidence=nor_cexperimental
join(27409) .27443,28126. .28308,28377. .28578,28641. .28772)
/gene="CG13765"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="FLYBASE:FBan0013765"
/db_xref="FLYBASE:FBan0031828"
/db_xref="FLYBASE:FBan0031828"
/protein_id="AAF52399.1"
/db_xref="G1:23273132"
/translation="MVMPQHVVISPILSSVRIVLLVRDPRGTMQSRRHRVWCGGNEDC
EDPRLVCQDLRDDYKTAEVLLLKYFSRFRTVRYEDLSLSSSEMTQDILQFYGLPPDPA
/evidence=not_experimental
/protein_id="AAR52398.1"
/db_xref="GI:7297131"
/translation="MSTGIGSSSSTEEQOHLELSADLEACSLLGPQDPSNVDTGRTR
                                                                                                                                                              ASVDGGFSNSLARSAFYDRFQQQQQQSSQTAVYNLTATIVDVLSAORSRILAEME

REFPERGAERLTDWTPERTOTPRKSVVTSRRSGSFFLGDILNSIPGNFYHYBPLLD

FGIRQI RDPDDDQELAVONLKNLLNCDYADMIDYLNFGKTHTYLFEHNTRLWDVCREFP

RFCWRPAFLTRFCRLFPIQSMKTVRLRAQAEKLLEDQR"

28641. .2877. .28578,

/gene="CG13765"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="cli gene product; Nucleotide sequence of the Celera
sequence differs from the published sequence for this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AQSAGSSFSTYQQAGGTSGGVSGEDGVVGGATVMSHWTHDGTGSSAAVKSESRSPGQV
HASLDNGSVAGSNLYGCSSASNPLDGGAVAVNSSAVAAAAAAVYDGKHDYYYYNSWQQ
YTPPPFYSGYGTPYAAATAARQAKMEPGAAAAAAAYLTPSYAASGNNNSQLYSSPYAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      THSTTPVHOTTHSPHSPLP1SPSTGSC1GPLGNVSAAAAAAALNSSGGSSVGTAGSGG
VATSKTTPTGKTGRARGRRHQQPSPTRSTASDTGNSEAVKPPERVFVWDLDETL11FH
TLLSGSYANRYTKDHSSLMT1AFRMEEMVFNWADTHFFFNEIEECDQVHIDDVSSDDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GQDLSAYNFATDGFHTNTPPGAPPNLCLPTGVRGGVDWMRKLAFRYRKIKDIYNSYRG
NVGTLLGPGKREAWLQIRSEIEVATDNWATLALKCLSMISQRENCVNVLVTSTQLAPA
                                                                                                                                    AKQRLSLNGKRRRSRMSRRANLIGICGVSSLCILLLIATTQHRPLTTPFNQSAGRDQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VEBFLDTHTKVNIGGVSSTYRDSRSAPFHWMQDLKPEEIKQIQDVCTEAMDLWGYRRI
ENFNNFSTTQQTFDPMVMPPPFT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SQQQQQQQQPQQQQTHQQQQQQQQQQQQSHQSTVLASNGPSSAGAGMGVGVGGGGGGG
GGVGGGVGCGVLQLPPQSQPLQPT1GSLASLSGHYSNGNANPNNSSSCSLATASSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YNNFGQQDYGGYYNEQYGNYYSPANYSPYAVSSPSSSASHGHGFHVAASSNLSESPTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(join(30215 ...30949,31026 ...31270,31333 ...33087,35664 ...35710,38587 ...38869))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MVTLMPYNYAAPRCGLIDKMIEPKVKRPKTDHTDTHERNRLCNL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="FLYBASE:FBan0009554"
/db_xref="FLYBASE:FBgn0000320"
complement(join(30768. 30949,31026. 31270,31333. 33087,
35664. 35110,38587. 38658))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Nucleotide sequence of the Celera sequence differs
from the published sequence for this transcript."
/product="CT27024"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="FLYBASE:FBan0009554"
/db_xref="FLYBASE:FBgn0000320"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db_xref="FLYBASE:BBn0000320"
/protein_id="AAF52400.1"
/db_xref="GI:7297133"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="FLYBASE:FBan0009554"
                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="FLYBASE:FBan0013765"
/db_xref="FLYBASE:FBgn0031828"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="FLYBASE:FBan0013765"
/db_xref="FLYBASE:FBgn0031828"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="CG13765 gene product"/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(<30215. .>38869)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /evidence=not_experimental <27409. .>28772
                                                                                                                                                                                                                                                                                                                                                                                                                 /product="CT33249"
```

```
L. Submitted (20-DEC-1995) Nematode Sequencing Project, Sanger Centre, Hinxton, Cambridge CB10 1RQ, England and Department of Genetics, Hinxton, Cambridge CB10 1RQ, England and Department of Genetics, Hinxton, Cambridge CB10 1RQ, England and Department of Genetics, jes@sanger.ac.uv or rw@nematode.wustl.edu Coding sequences below are predicted from computer analysis, using predictions from Genefinder (P. Green, U. Washington), and other available information.

Current sequence finishing criteria for the C. elegans genome sequencing consortium are that all bases are either sequenced unambjguously on both strands, or on a single strand with both a dye primer and dye terminator reaction, from distinct subclones. Exceptions are indicated by an explicit note.

IMPORTANT: This sequence is not the entire insert of clone F44D12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               268298.1 GI:1130621
HTG; Serine/threonine protein kinase; Tight junction protein; Zinc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66717 AGACGÓTGCACACCAÁTACCAGACCACTGCCGGAATGTACGCAGCTGCCATGCTGATCA 66776
                                                                                                                                                                              66421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1175 acgtcgtgccatctcactactcaagatttgccgctcagctttccgtttgcactcttatgg 1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CEF44D12 31853 bp DNA INV 20-JUN-2001
Caenorhabditis elegans cosmid F44D12, complete sequence.
268298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Luvestigating biology. The C. elegans Sequencing Consortium Science 282 (5396), 2012-2018 (1998)
                                                                                                                                                                                                                                                                                                                                                             teacaaactgttatgggcaactetteaatgttttggttetgetttgeegttacteteaa
                                                          tettecetgttatgatgaeegttaeeaetegtggagatteeggetteetaaaeaaatta
                                                                                                                                                                                                                                                                             ----GTAGGCCCGGACTACTTTACACTGGTCACTTGCTTCGCGACCTTTAACGTCTTCG
                                                                                                                                                                                                                                                                                                                                  ctgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1115 gaattgccatgtcttttcacatggatacctcagcgctctggcaatgggatacactccaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTTCCCGGCGATTCAGTCGAACGTGCACCGCTCCGACCCAAATTTCGTA-----
                                                                                                                                                                                                                                tgtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcg
                                                                                                                                                                                                                                                                                                                                                                                                                                    1001 ttgccataatcttgcgtgctctttcattccattcttcttcttctgcaacta-----tc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gtgtccagacgcgtgcttatcctgttttctttgagtctactgacattttgtgattggtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66597 cedactreerecertearreeceerarreareagaacearreegrerareegecaree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida;
Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The C.elegans Sequencing Consortium. 2 (bases 1 to 31853)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66777 CGGCCATCTTCTCCGGAGTGCTGT 66800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1235 ttggccttctcaccggtggcctgt 1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            finger protein.
Caenorhabditis elegans.
Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 31853)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Colès, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           none
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                             761
                                                                                                                                                                                                                                881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1055
                                                                                                                            821
                                                                                                                                                                           66372
                                                                                                                                                                                                                                                                                                                                     941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                   66422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
CEF44D12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCUS
                                                                          g
                                                                                                                                                                           Dp
                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                              ò
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                  .59817,60078. .>60118))
                                                                                                                                                                                                                                                                                                          .60118))
LAKVLLFGLGGIFNIENIYSAHKIGHETCYERIVTRFGRKSTYVVIGDGNEEETAAKA
MNFPFWRISAHSDIRALYTALDMGFL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MMHRKLKVNWNVEQNDAELRMERLARVKIFVLAGPQDRFTEDEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65601 CAGCGCCAAAAGATAAATTCCTTATCGTGTTTCTTTATATTTCTGCTGCTGCACGGCGTGGGCA 65660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65721 GACCAAACAACACGGGGCCACGGAAGTGAGTTACCGCACCCATTTCATGCAAAATATGG 65780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65955 GGACCACCATGTGTGTTGTTTAAACGTGTGCAACGCATCTACCAGAACACCA 66014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66015 TATACGGAATAGTGGCATCGTTGCCCATCAAGTACACAGGCGCCGTCGTCCTGGGCTCCA 66074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66252 GGAGCAGCGAAAAGAAATCTGATTCTAAGGCCCAGCTGAACGTGCCTTACTGGCAGATCT 66311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66192 TCGACACGTACTTTGCGCTGCCGCTGAACAAGTTCTTCCGGCACTACGAGACCATTAGCC 66251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    107 ttcttctgccatggaatatgttcattactatcgccc----tgagtattatgtgaatt 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ctggtcccctgatctaccgcgtctttgctccggtttgcttcaacatcgtcaacctgacaa 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47 catttccaagagacaagtacaatattgtctactggctcgtcattcttgttggattcggag 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gggtaactcttggaatggcgacttcaatcaattttagcaatgggctatatgaaaactcgg 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="FLYBASE:FBgn0031829"
complement(join(58570. .59115,59172. .59817,60078.
/gene="CG9595"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       65661 CGCTGATGCCATGGAACATGTTCATCACGGCCAAGTCCTATTTCGAGGACTTCAAGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tcattctcatcctcgtcattgttctggagcccactgaagattccatgtcctggtttttct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65901 TTACCATTATTTTGGCCATGCTCG-----ACTCCTCGCAGTGGCCGGGCGTTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tttatggagttggtggcgattttccgcacacctacattggcgctctcttgattggaaaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      581 agcctaaacttgttgcaatcgtctatttcggcatatcgttggtgatccttctggtgtgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161 attggttcaaaccggatggcgtggagacatggtattcgaaagaattcatgggatctttga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        221 cgattggctcacaacttccaaacgcaagcattaatgttttcaacctgttcctcattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65841 GCGGCGACCTGACCACCCGAATCGTCTACAGCATCATCTTCGAAATGGTCATTCTGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acatttgcggattgctgataacggttgtgaaaatcggagtgacctattttctgaatgatg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66075 ACATCAGCGGCTGCTTCACCACCGCCATGGCCTTGATATGCGGTGAGATCTTCTCGTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             641 caattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 259464;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                            complement(join(<58570. .59115,59172.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 90.8; DB 3;
Pred. No. 1.8e-12;
0; Mismatches 632;
                                                                                               /product="CT27132"
/db_xref="FLYBASE:FBan0009595"
/db_xref="FLYBASE:FBgn0031829"
                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="FLYBASE:FBan0009595"
/db_xref="FLYBASE:FBgn0031829"
/protein_id="AAF52401.1"
/db_xref="G1:7297134"
                                                                                                                                                                                                                           /map="26E1-26E2"
/db_xref="FLYBASE:FBan0009595"
                                                                                                                                                                                                                                                                                                                                                          /note="CG9595 gene product"
                                                                                                                                                                           complement(<58570. .>60118)
                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                      /gene="CG9595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45.48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Sim
Matches 556;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  461
                                                                                                                                                                              gene
                                                  mRNA
                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
```

QQ

ò

g

ò g ò

à

g

g

ò

qq

ò

g

ò

qq

ò g ò

ð

g

ò

q

ò

gene

from this is gene

FEATURES

```
/protein_id="CAA92605.1"
/db_xref="G1:3877156"
/db_xref="G1:3877156"
/db_xref="Lon="WINHADGEEGESPLSYFQYLHVEYNICNGRKWGGTTLKMNEELA
FLTAINS1="MTKHMAQEEGESPLSYFQYLHVEYNICNGRKWGGTTLKMNEELA
RNSSYTGNSQIGLYPREDTWGREESEPTDRRYLVYIIFTMHGWGMLMSWNMFITIAPQ
YYHDYWFNNTNYQDSFMSIIGVTSQIPNVGIMILNTIVVMV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FCYHAQYFYGNEMMPTIQKGCVIGEVAPEGCRVNHHGNVMCFCSDADYCNANYTSLAD
TATTILPVQTCQPEKVNNMPKPRWTRCAANYCTFIEAKTQTEVNSANYTWGTKDCNK
ENBFDFFPTILVFNPYPGCVWLNYGQQPDTHACYGSDSLDTTLVFDVTTATTECHVD
YFNPRLPPYKSGSGGIGGPCFISATSRGEVPRGCVNSVTVBGATPLKIGYTRATTGCHV
OMICDQSYCNADLKSAELSWPPELYLYRNISNLREFNVFYIDSARSSSIFLAIPIVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="contains similarity to Pfam domain: PF00635 (MSP Major sperm protein) domain), Score=111.7, Fralue=4.7e-30, N=1 cDNA EST yk57e8.3 comes from this gene; cDNA EST yk102a1.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               comes from this gene cDNA EST yk57e8.5 comes from this gene; cDNA EST yk102al.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MQTILIQLIVLFTLFHEVNTLVTCSRCEFGNEECNFSRSTCRGD
                                                                                                                                                         complement(join(7556. .7673,7717. .7832,8096. .8296,
8340. .8510,8662. .8718,8944. .9111,9541. .9638))
/gene="F44D12.2"
                        ....prement(join(7556. .7673,7717. .7832,8096. .8296,
8340. .8510,8562. .8718,8944. .9111,9541. .9638))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA EST yk299b2.5 comes from this gene; cDNA EST yk309f7.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       join(12326. .12380,12427. .12481,12574. .12895)
/gene="F44012.9"
join(12326. .12380,12427. .12481,12574. .12895)
/gene="F44012.9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  comes from this gene
CDNA EST yk1226.5 comes from this gene; CDN
yk14943.5 comes from this gene cDNA
yk14941.5 comes from this gene; CDN
yk16491.5 comes from this gene; CDN
yk17946.5 comes from this gene; CDN
yk17946.5 comes from this gene; CDN
yk17946.5 comes from this gene; CDN
yk17943.3 comes from this gene
CDNA EST yk189f1.5 comes from this gene; CDN
yk16491.3 comes from this gene
CDNA EST yk170h1.3 comes from this gene; CDN
yk17946.3 comes from this gene
CDNA EST yk170h1.3 comes from this gene; CDN
yk17946.3 comes from this gene
CDNA EST yk170h1.3 comes from this gene; CDN
yk17946.3 comes from this gene
CDNA EST yk189f1.3 comes from this gene; CDN
yk190a10.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cDNA EST yk164f1.5 comes from this gene, yk378f3.3 comes from this gene cDNA EST yk378f3.5 comes from this gene; yk43lf3.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA EST yk431f3.5 comes from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA EST yk311h6.5 comes from this gene;
                                                                                                                                                                                                                                                                                              /note="CDNA EST yk169e12.3 comes from thi
CDNA EST yk367d4.3 comes from this gene
CDNA EST yk367d4.5 comes from this gene
CDNA EST yk553h9.3 comes from this gene
CDNA EST yk553h9.5 comes from this gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 yk365g9.3 comes from this gene
cDNA EST yk365g9.5 comes from t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                yk311h6.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   yk299b2.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="CAA92598.2"
/db_xref="GI:5824507"
/db_xref="SPTREMBL:Q20392"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement(15660, .15989)
/gene="F44D12.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA EST yk92f10.3 comes
yk150al1.5 comes from thi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /qene="F44D12.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=
                                                                  dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        join(3277. .3413,3774. .3951,3994. .4239,4318. .4603,
4647. .4894,4945. .5180,5225. .5395,5449. .5759,5805. .6053,
6100. .6802,6846. .7020,7211. .7306,7357. .7425)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .6053,
                                                                                                                                                                                                                                                                                                                                                                             The end of this sequence (31750. .31853) overlaps with the start of sequence 268299. For a graphical representation of this sequence and its analysis see:-_http://wormbase.sanger.ac.uk/perl/ace/elegans/seq/sequence?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLPLNYGVGLELSNGVFINSCEPNGAASRSGLAPGORVVHVMHTPVYDAKHAEMLIKN
SREPLYJGLILGGSTKRODHNAROKHRYOTIFSRWFSSBNGSSBKERTVVAKNIDRSNIQV
LLRGGSLRMPQASPASMSPLVRYGSLRAPTYSSSIDHTKLMLDALDKRFNAKSTAHSE
ISSSSTAAPTALMSPSSVNEKDLVFAGTNIEGVPVYVPKSTIFSTPTSPVTRLIRGNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EQKRTMSQISSHRGGWDGRSFSSNTTTSDARPYSMHFTPTSSTIMEGKPHRRSAVISP
SHPPVYPTIRDDSMSSVMSSSNSIRLPSTSFSNQYPNNSTCSLTGGSGVPPRHCISKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GSDFSISTTGSAMHSYAEGRSNKKYHLPRGNHHSESLLVNRSSQPRLVEVPRSDVKLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EPFLQMLVDESDKFSIVARESLTASLDEVSALLKDKVLIDSKQNDDVYDLYHVVSTAH
IMDITAQGLHCVLQVDQSAIDRLKRCRMFPILVKIRFKSVKQLKDVNEHICGEKISSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="SPTREMBL:Q20398"
/translation="MEKEIREVEAKWMEKVRRASEERDDIGKKIDEFEEKIDSLQIOV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HRSETYKMEIEEANKRLRLQYEALQRDYEETMQERSIVLEENSRQNEERDRLQKEIEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MKEDSEEVAALKOKLENTRRLLKVNMEETAQANARKEAAIARLTEAEQNGARITEERD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EALRKCQQTTGDAIVDIWNTHSVQINLPFNKPNLGIMLGGGRTDDGSÏVHGPIYVRQI
AHGSPFDNVLKKLDHIMMVNDISVTDMDERSVMGMLSNCHHIHLVIRRRSNCNKISDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGNAIGILAEKSIGSDLLEGDLILSIDGNCVRNTTLECAMNTLSADNSELTGLLVQDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GDRLNRLRLGADGDSFFLRVNIDRSMENKDELDLKCGDVVFVDKTMLMGKTGRWRAWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VDKEGRQREHGAIPSSTTVYQAIRANRYANPFPKKAYEWVEKLDTKVKRPVLLFGAVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EAKQLIEKDLKIEKDLDGSVTLVVPSHNNVSFMMTHAVLQLKKIIEDEQKKIVWVQRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Join (3277. 3413,3774. 3951,3994. 4239,4318. 4603,4647. 4894,4945. 5180,5225. 5395,5449. 5759,5805. 605 6100. 6802,6846. 7020,7211. 7306,7357. 7425). 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 7901. 
                                                                                                                                                                                                                                                             The true left end of clone T04B2 is at 31750 in this sequence. The start of this sequence (1. .104) overlaps with the end of sequence
                        sections
between
                                                                                                                                        in this sequence. The in
once, or longer because we only sequence overlapping neighbouring submissions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ST Yk35265.3 comes from this gene
ST Yk35265.3 comes from this gene
ST Yk32489.3 comes from this gene
ST Yk32489.5 comes from this gene
ST Yk2194.3 comes from this gene
ST Yk2194.3 comes from this gene
ST Yk2194.5 comes from this gene
ST Yk2194.5 comes from this gene
ST Yk2194.5 comes from this gene
ST Yk2209.5 comes from this gene
ST Yk2209.5 comes from this gene
ST Yk2209.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ykl29c3.3 comes from this gene ykl29c3.5 comes from this gene yk360bl2.3 comes from this gene yk360bl2.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   yk388f10.5 comes from this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Caenorhabditis elegans"
/db_xref="taxon:6239"
/chromosome="IV"
                                                                                                                                        The true left end of clone F44D12 is at 1 true right end of clone F44D12 is at 6268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="CAA92607.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="GI:3877158"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="F44D12.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="F44D12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA EST CONA EST CONA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDNA EST
CDNA EST
CDNA EST
CDNA EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .31853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_
                                                                                                                                                                                                                       sequence Z68299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               name=F44D1
                                                                                                                                                                                                                                                                                                                                            268882.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
```

EST

CDNA EST

CDNA CDNA CDNA CDNA

CDNA EST

CDNA CDNA EST

CDNA EST

```
The true right end of clone C47A4 is at 40664 in this sequence. The true left end of clone F52D4 is at 101 in this sequence. The true right end of clone F56F12 is at 9819 in this sequence. The start of this sequence (1. .104) overlaps with the end of sequence 280218.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The end of this sequence (40564. .40664) overlaps with the start of sequence 282273.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IVSLIIVMAMNASNGLYQNSFFGMAADFPAKYSNAVVIGTNICGTFTSVLAĪVATLAF
STQAETVALIYFGISLLILEVCLVSWWFCKKMCWLQCICVFLVYFVSLSVFPTVLAGF
QPGYTVFPNDVYAGIAVFLNFNFFAAVGNVAATFVTFPGPRLLIVPCVIRLLFIPFFM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MTIKDLLKIENFIVTYDPSETLLEMDRNGKLKKNKGVDNDEVIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QIIIDNLDVTGGYKRESIYDTLAWHTIIFPLTIFRYIKWTALWYWRFAIQKEEYDDDA
KLYLIRKYIGVSQMEFDQKYTDEDIDDLFERECWLKTNCATWKAERDAAEQEKMAQSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PEDKGRIVEWIILLNGIGVLLPWNMFITIAPQYYVDYWFTVNGTATHYADSFQSAMGV
VAQVPNLIVAIINVLNLIRGPLLYRVLAPLAFNSLLIVIILALVIFQQPSDQARNWFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MVIRDYESISPVDPPPLYTQDQNTEDLASIVDGADSSDEHNELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FSNYLPHSRTMGVLFTNEWIFFFGNTLLAFTSGYFSSLGMMYTPRVCPPEYSKLAGOV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(join(28627. .28707,28755. .28832,28884. .29024,
29070. .29267,29338. .29466,29527. .29850))
/gene="C47A4.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5. .28832,28884. .29024, .29850)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    For a graphical representation of this sequence and its analysis see:- http://wormbase.sanger.ac.uk/perl/ace/elegans/seq/sequence?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              join(15737. .15769,15884. .16078,16580. .16814,17751. .1.
18821. .18923,18970. .19055,19306. .19502,20056. .20176)
/gene="C47A4.2"
                                                                                                                                                           Current sequence finishing criteria for the C. elegans genome sequencing consortium are that all bases are either sequenced unambiguously on both strands, or on a single strand with both a dye primer and dye terminator reaction, from distinct subclones. Exceptions are indicated by an explicit note.

[981006 dl]: Cosmid flipped
IMPORTANT: This sequence is not the entire insert of clone C47A4. It may be shorter because we only sequence overlapping sections once, or longer because we arrange for a small overlap between neighbouring submissions.
                          jes@sanger.ac.uk or rw@nematode.wustl.edu
On Nov 13, 1998 this sequence version replaced gi:2528885.
Coding sequences below are predicted from computer analysis, usin
predictions from Genefinder (P. Green, U. Washington), and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3580. .16814,17751. .1
.19502,20056. .20176)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="contains similarity to Pfam domain: PF01733 (Nucleoside transporter), Score=142.5, E-value=2.4e-39,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="contains similarity to Pfam domain: PF00149
  Washington University, St. Louis, MO 63110, USA. E-mail:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Ser/Thr protein phosphatase), Score=476.0, E-value=1e-139, N=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .4254))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RYKRYKRYMKNAGTISFVDED"
join(12737 . 15769,15884. .16078,16580.
18821 . 18923.18970. .19055,19306. .195
/gene="C47A4.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28707,28755.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(join(28627. 28707.28755
29070. .29267,29338. .29466,29527.
/gene="C47A4.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /.organism="Caenorhabditis elegans"
/db_xref="taxon:6239"
/chromosome="IV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(join(3491. .3973,4192. /gene="C47A4.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .3973,4192.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SALSLVLGITAGVSFTYAITAMVNNF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="contains similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="CAB62793.1"
/db_xref="G1:6562351"
/db_xref="SPTREMBL:09U3L8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="SPTREMBL:Q9U3L9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="CAB62792.1"
/db_xref="GI:6562350"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(join(3491./gene="C47A4.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="C47A4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
                                                                                                                                               available information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. 40664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                name=C47A4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
Submitted (11-NOV-1996) Nematode Sequencing Project, Sanger Centre,
Hinxton, Cambridge CB10 1RQ, England and Department of Genetics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12947 GGTTTCATGATGCTTCGAGTTGTGGTTCCTCTCATTGTGAACTGCATTTTGATTGGGGTC 13006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13007 ATTGTTATTCTTGCCATTTTTGTAACACCATCTCCAGACAGTGTTACATGGTTTTATATT 13066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  343 atteteatectegteattgttetggageceaetgaagatteeatgteetggtttttetgg 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ggiccoctgaictaccgcgittigciccggittigcitcaacaicgicaaccigacaaic 342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gtaactcttggaatggcgacttcaatcaattttagcaatgggctatatgaaaactcggtt 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tatggagttggtggcgattttccgcacacctacattggcgctctcttgattggaaacaac 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25-OCT-2000
                                                                                                                                                                                                                                                                                                                                        yk232q4.3 comes from this gene; cDNA EST yk232q4.3 comes from this gene cDNA EST yk232q4.3 comes from this gene; cDNA EST yk232f9.3 comes from this gene; cDNA EST yk232f9.5 comes from this gene; cDNA EST yk232b6.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genome sequence of the nematode C. elegans: a platform for investigating biology. The C. elegans Sequencing Consortium Science 282 (5396), 2012-2018 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Erratum:[[published errata appear in Science 1999 Jan
1:283(5398):35 and 1999 Mar 26;283(5410):2103 and 1999 Sep
3:285(5433):1493]]
2 (bases 1 to 40664)
yk309f7.5 comes from this gene; cDNA EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA EST yk232a1.5 comes from this gene; cDNA EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 3; Length 31853;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Caenorhabditis elegans cosmid C47A4, complete sequence.
                                                                          yk302c7.3 comes from this gene CDNA EST yk302c7.5 comes from this gene CDNA EST yk302c7.5 comes from this gene; cD yk2046.3 comes from this gene; cD yk264e2.3 comes from this gene; cD yk264e2.3 comes from this gene; cD yk262a3.3 comes from this gene; cD yk262a3.3 comes from this gene; cD yk233c12.3 comes from this gene; cD yk233c12.3 comes from this gene; cD
                          3 comes from this gene
yk303a11.5 comes from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   comes from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ΙΝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 84.8; DB 3;
Pred. No. 4.9e-11;
0; Mismatches 117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cDNA EST yk232b6.5 comes from t
yk232a1.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13187 TTGTGTGGAGTTTTTACTTCAGTATTGAGTAT 13218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The C.elegans Sequencing Consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             523 atttgcggattgctgataacggttgtgaaaat 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Caenorhabditis elegans. Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 40664)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Z82263.1 GI:3869220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mortimore, B.J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CEC47A4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              282263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           none.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Sim
Matches 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE
REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
CEC47A4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rocus
```

Db

ŏ

В

ò

qq à

οy

Db

ò

.18037

.18037

```
/db_xref="SPTEMBL:023602"
/translation="MPNKNGVKESPSTSKSSNNNKRREPESRYEEKTAVHGGKTKVE
EKTVVHGGKTNNVVAKKVPSKASVIVDKKASTTETTVPITVKKSMLSISTAVDRTVYE
EKEKBKFKKRENEMANGSEDASIKFRELERPOSEGGVRRDTBASCPNRCKMMGSHSSRN
RHTDYKCYDHRIIVOMCKDDYINGSKINVPHFTPSIYLVOLPKMDSVDAVEEFWRVV
PHEDQCOTVHITARPEELTNPAIDKLECQESGAMLYANGFFVHTRVEKKENAKADMFV
VELLEBGCSTANMCSYVLHTYWFLEGPDREGAQIRAAHOIAKNBNSPVIASVNG
SGRNAALLTLAVVEDOLLTRGKEPKISEIVRTIREQRPOSVDSYIOXVSLXMATNWLIK
                                                                                                                                                                                                                                                                                                                                                                                     It may be shorter because we only sequence overlapping sections once, or longer because we arrange for a small overlap between neighbouring submissions.

The true left end of clone ZK809 is at 1 in this sequence. The true right end of clone ZK809 is at 15121 in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="SPTREMBL:023601"
/taaslation="MIHHRYHQKRILIPNITLHCTLPHYHYSFSVLFLSDTSFYLIF
/traaslation="MIHHRYHQKRILIPNITLHCTLPHYHYSFSVLFLSDTSFYLIF
SFYSIFLYYFWAGCREYDDJDAHVLDSEFRSIAQDSVDDVVNOMPLWVARIFEKLIR
PELKVTLEAVLWTHRFSRGASPGQEQMDIAYAGYTPKLITSHFWVEVIVPYLTRRMSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Similarity to Rat peroxisome assembly factor-1
(SW:PAFL_RAT), contains similarity to Pfam domain: PF00097
(Zinc finger, CAFL type (RING finger)), Score=16.2,
E-value-0.0035, N=1
  Dobson, R. Direct Submission Submitted (20-DEC-1995) Nematode Sequencing Project, Sanger Centre, Submitted (20-DEC-1995) Nematode Sequencing Project, Sanger Centre, Hinxton, Cambridge CB10 1RQ, England and Department of Genetics, Washington University, St. Louis, MO 63110, USA. E-mail: jes@sanger.ac.uk or rw@nematode.wustl.edu Geding sequences below are predicted from computer analysis, using predictions from Genefinder (P. Green, U. Washington), and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The end of this sequence (25461. .25560) overlaps with the start of sequence {\bf Z}68302.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence Z68302. The true left end of clone ZK792 is at 25461 in this sequence. The start of this sequence (1.\ .113) overlaps with the end of sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   For a graphical representation of this sequence and its analysis see:- http://wormbase.sanger.ac.uk/perl/ace/elegans/seq/sequence?
                                                                                                                                                                                                                             Current sequence finishing criteria for the C. elegans genome sequencing consortium are that all bases are either sequenced unambiguously on both strands, or on a single strand with both a dye primer and dye terminator reaction, from distinct subclones. Exceptions are indicated by an explicit note.

IMPORTANT: This sequence is not the entire insert of clone ZK809.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TKLPSGHEVVSKIKKENEKATRSLPGSMMKTPTEEL"
join(3252. .3612,3660. .3835,4567. .4606,5066. .5406)
/gene="zk809.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .2001,2054. .2551,2599. .2803,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="contains similarity to Pfam domain: PF00102
(Protein-tyrosine phosphatase), Score=35.2,
E-value=2.3e-13, N=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .2001,2054. .2551,2599.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .3835,4567. .4606,5066.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cDNA EST yk560al1.5 comes from this gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cDNA EST yk365g6.3 comes from this gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
1. .25560
/organism="Caenorhabditis elegans"
/db_xref="taxon:6239"
/chromosome="IV"
/clone="2K809"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="CAA92640.1"
/db_xref="GI:3881798"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="CAA92641.2"
/db_xref="GI:5824906"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Join(1372. .1376,1431.
2847. .2854)
/gene="ZK809.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    join(1372. .1376,1431.
2847. .2854)
/gene="ZK809.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 join(3252. .3612,3660.
/gene="ZK809.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                             available information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            name=2K809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          273427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
        'AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                            COMMENT
                                                                                                                                                                                                        /translation="MQNNVVDSIIIDVLSASTHEKPLCKVITEERVLKLLDLALGVFK
AQKFWVEVNAPIKVGDIHGQFPDLLRLFHRGGWPPTANYLFLGDYVDRGRFSIETIV
LLLAYKVKFPCNFFLLRGPTBCEFKYGSYGRYQSYRMYARPQDVFNWLPLT
GLIATKILCHGGLSPLATKHFFTLDTLKKIERPFEGKEGLVADLLWADPISGLSGFNN
NQRGAGGGFRDSVLALCSEFQLDLVCRAHQVVQDGYFFFAGRKLVTIFSAFHYGGQF
DNCAAFWSCDEKLQCSFEILRPTTGRLEIREKPLLKDFTN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MADKSAFVPVDAIGNHKNTDLDVDIDDELFGKKPPKTAEAPKPA
PPPPAPAAPAAAPSTGKYQYKKSSTYQKSYAK"
6918 c 6544 g 13766 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HTG; Hydrophobic nucleolar protein like; Peroxisome assembly factor
like; Protein-tyrosine phosphatase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17878 TATTGGAACAAATATTGTGGAACATTCACTAGTGTCTTGGCAATTGTCGCAACTTTGGC 17937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               450 tgaaaactcggtttatggagttggtggcgattttccgcacacctacattggcgctctctt 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gattggaaacaacatttgcggattgctgataacggttgtgaaaatcggagtgacctattt 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       570 tctgaatgatgagcctaaacttgttgcaatcgtctatttcggcatatcgttggtgatcct 629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genome sequence of the nematode C. elegans: a platform for investigating biology. The C. elegans Sequencing Consortium Science 282 (5396), 2012-2018 (1998) 99069613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17818 CCARARCTCATTTTTTCGGAATGGCTGCAGATTTTCCCGCAAAATACTCGAACGCTGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 40664;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CEZK809 25560 bp DNA INV 20-JU
Caenorhabditis elegans cosmid ZK809, complete sequence.
268303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Caenorhabditis elegans
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida;
Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
  this gene
this gene
this gene
this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches 128;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 71.2; DB 3;
Pred. No. 1.7e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17998 GTTTGTTTTGTGTGTTGGTGGTTCTGCAAGAA 18033
                                                      from t
                             from
     from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           630 tctggtgtgtgcaattgcacttttctttatcacaaa 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The C.elegans Sequencing Consortium. 2 (bases 1 to 25560)
                                                                                                                            /protein_id="CAB62794.1"
/db_xref="G1:6562352"
/db_xref="SPTREMBL:Q9U3L7"
yk121b5.3 comes f
yk121b5.5 comes f
yk262b6.3 comes f
yk262b6.5 comes f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="SPTREMBL:Q9U3L6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="CAB62795.1"
/db_xref="GI:6562353"
                                                                                                                                                                                                                                                                                                                                                                               /gene="C47A4.5"
33294. .33521
/gene="C47A4.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
0
                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 25560)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               53.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Z68303.1 GI:1130662
                                                   CDNA EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                            33294.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 148; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    none.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REMARK
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CEZK809/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
```

gene

CDS

gene

CDS

```
Db 12933 GGTCGT 12928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1278 cttcgt 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1038
                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
166494
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRWYQLGEKVGDLPKGSSLEILRKNPPIEY"
join(11625. 11731,11785. .11887,11940. .12056,12122. .12232,
12286. 12419,12469. .12529)
/gene="ZR809.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           join(11655. 11731,11785. .11887,11940. .12056,12122. .12232,
12286. .12419,12469. .12529)
/gene="zk809.3"
LSGRIDISRMYSKIEAIYELGSLLHFLYFLRSASINYDTQNRELMWHAFRDVILLTYP
FIEKARQRIVKKQKLDRKFTSSIGSSDIECVVCDKPSVIPMVGQKCGHVACYTCIATS
RNMTCPLCSENAEPMEFLAKKLKNPILLE"
complement(join(10131. .10337,10438. .10717,10774. .10870,
10916. .11035,11085. .11127))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /traislation="MSLVTSYSKLMFLGGSNKLICHNKETFYKILENPNQPLITYSNH
RSNIDDPLMWCILKFREFWRYKDRNRYTLAAHNICFTKQFHTTMFSLGRCVPCVRGEG
VYQKGMDFCVDMLNDNKWVHIFPEGKVCTLESEPLRFKWGIGRLVMDAKTDFVILLPVW
CKEMEKVWPTQPPYYPKFGNTVTVHIGEPFFLSDLKKTVLSKSLTTEQMRKIITDEVQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="predicted using Genefinder
DDA EST yK78b3.3 comes from this gene; cDNA EST yK78g8.3
comes from this gene
cDNA EST yk105h6.3 comes from this gene; cDNA EST yK78b3.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       comes from this gene
cDNA EST yk78g8.5 comes from this gene; cDNA EST yk105h6.5
                                                                                                                                                                 complement(join(10131. 10337,10438. 10717,10774. 10870, 10916. 11035,11085. 11127))
/gene="zk809.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CONN. EST Yk636e8 3 comes from this gene; CDNA EST Yk636e8.3 comes from this gene cDNA EST Yk636e8.3 comes from this gene; CDNA EST Yk437al2.5 comes from this gene polyk437al2.5 comes from this gene; CDNA EST Yk437al2.5 comes from this gene; CDNA EST Yk459fil.3 comes from this gene; CDNA EST Yk456el.3 comes from this gene; CDNA EST Yk456el.3 comes from this gene cDNA EST Yk436cl.3 comes from this gene cDNA EST Yk435cl.3 comes from this gene cDNA EST Yk435cl.3 comes from this gene cDNA EST Yk435cl.3 comes from this gene; CDNA EST Yk435cl.3 comes from this gene; CDNA EST Yk435bll.3 comes from this gene; CDNA EST Yk435bll.3 comes from this gene; CDNA EST Yk435bll.5 comes from this gene; CDNA EST Yk435bll.5 comes from this gene; CDNA EST Yk417d5.5 comes from this gene
                                                                                                                                                                                                                                                                 /note-"contains similarity to Pfam domain: PF01553 (Acyltransferase), Score-144.3, E-value-7e-40, N-1cDN EST yk576b1.3 comes from this gene cDN EST yk576b1.5 comes from this gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  yk567all.5 comes from this gene
CDNA EST yk58698.5 comes from this gene; cDNA EST
yk597b7.5 comes from this gene
cDNA EST yk616f10.5 comes from this gene; cDNA EST
yk616h5.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          yk199b5.5 comes from this gene
cDNA EST yk538d11.3 comes from this gene; cDNA EST
yk561e2.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDNA EST yk391b6.3 comes from this gene; CDNA EST yk391b6.5 comes from this gene CDNA EST yk197b7.3 comes from this gene; CDNA EST yk197b7.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA EST yk620g3.3 comes from this gene; cDNA EST yk623f9.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDNA EST yk665912.3 comes from this gene; CDNA yk538d11.5 comes from this gene CDNA EST yk561e2.5 comes from this gene; CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA EST yk199b5.3 comes from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA EST yk650c6.3 comes from this gene;
yk655c5.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA EST yk567all.3 comes from yk586g8.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             from this gene
                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="CAA92638.1"
/db_xref="GI:3881796"
/db_xref="SPTREMBL:023598"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cDNA EST yk597b7.3 comes fi
yk616f10.3 comes from this
```

```
LHMADERVRAAGLSEREKREKKWYHDOHLHADEPVVDAUHROLNDIRTAYRLPWDK
FYLHYLKPTFGVYGTAIRVTAPKLLMAFVVVQTAYYYWKYEVKDWTHLRGLESMPOK
FVLASAPAIEEKFPGLMDKGLANPSKDDYYTPTFNKRTAYLDVGETKRPW"
complement(join(12918. 13232,13332. 13978,14028. 14122,
14201. 14367,14519. 14680))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Similarity to Human 36k hydrophobic nucleolar
protein (PIR Acc. No. JC4196), contains similarity to Pfam
domain: PF01733 (Nucleoside transporter), Score=541.4,
E-Value=2e-159, N=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="SPTREMBL:023599"
/translation="WSSAVELQPURKKVEEESPEPEDKGNLVFYIILLHGIGTLMP
MMLITISYDYFESYKMANSTIDMOTGVYTGYPTYSSNFGSFQTTASQVPNLLLNL
LNIFIVVKGGLASRIYTVGLSIVAVCVITTMMFIYVETSTWLTGFFTLTIIIIILULNGA
                                                                                                                                                                                                                            'translation="MGNQYVKPERTGNSPYTRSGVPPPALVKTGDKPLHRVNDRMSLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                      complement(join(12918. .13232,13332. .13978,14028. .14122,
14201. .14367,14519. .14680))
/gene="zK809.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13173 CATCTTCTGCAACTATCTCCCTGAGACCCGTTCACTTCCCGTCTTTTTCGAATCCACCTG 13114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cttcttctgcaactatcgtgtccagacgcgtgcttatcctgttttctttgagtctactga 1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1158 aatgggatacactccaaacgtcgtgccatctcactactcaagatttgccgctcagctttc 1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gccgacaccccgttacctcaaatttgccataatcttgcgtgctcttttcattccattctt 1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            catttttgtgattggtggaattgccatgtcttttcacatggatacctcagcgctctggc 1157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1218 cgtttgcactcttatggttggccttctcaccggtggcctgtggccgttgttattgagca 1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131113 GCTTTTCGTCATTATCGCCGCCTCGATGAGCTTTGGAAGTGGATATTTCTCGGGACTCGC
          EST
                                                       EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó;
cDNA EST yk620g3.5 comes from this gene; cDNA yk623f9.5 comes from this gene cDNA EST yk650c6.5 comes from this gene; cDNA yk655c5.5 comes from this gene
                                                                                                    this gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity 52.0%; Pred. No. 2e-07; Similarity 52.0%; Pred. No. 2e-07; S9; Conservative 0; Mismatches 147; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; DB 3; Length 2e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        this
this
this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAT
                                                                             yk655c5.5 comes from this gene
CDNA EST yk665g12.5 comes from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
from
from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA EST yk77f11.3 comes fr
CDNA EST yk77f11.5 comes fr
CDNA EST yk373c3.3 comes fr
CDNA EST yk373c3.5 comes fr
CDNA EST yk228c5.3 comes fr
CDNA EST yk328c5.5 comes fr
                                                                                                                                                                                                   /db_xref="SPTREMBL:Q23597"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 14 from patent US 5670367. 166494.1 GI:272/27
                                                                                                                                                   /protein_id="CAA92637.1"
/db_xref="G1:3881795"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/protein_id="CAA92642.1"
/db_xref="G1:3881800"
```

```
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
 COMMENT
                                                                                                                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HTĠ; Aspartyl beta hydroxylase like; NADH-ubiquinol oxidoreductase;
Protein kinase; RAS-related protein; Ubiquitin carboxyl-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
Submitted (29-AUG-1996) Nematode Sequencing Project, Sanger Centre,
Hinxton, Cambridge CB10 1RQ, England and Department of Genetics,
Washington University, St. Louis, MO 63110, USA. E-mail:
                                                                                                                                                                                                                                                                                                                                                                                     getcagettteegtttgeaetettatggttggeetteteaeeggtggeetgtggeeegtt 1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gagtctactgacatttttgtgattggtggaattgccatgtctttttcacatggatacctc 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     967 aagattcactggccgacaccccgttacctcaaatttgccataatcttgcgtgctctttc 1026
                                                                                                                                                                                                                                                                                                                                                                                                                                  attccattcttcttcttctgcaactatcgtgtccagacgcgtgcttatcctgttttcttt 1086
                                                                                                                                                                                                                                                                                             907 tigotcacaagiticotogicticaatiigitogotgogatiggatocatagitgotico 966
                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Genome sequence of the nematode C. elegans: a platform for investigating biology. The C. elegans Sequencing Consortium Science 282 (5396), 2012-2018 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         agogototoggoaatgggatacactocaaacgtcgtgccatotoactactcaagatttgcc
                                                                                                                                                                                                                                                            .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Caenorhabditis elegans cosmid K09A9, complete sequence. 279601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida;
Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                        DB 6; Length 7218;
                                                                                                                                                         others
                                                                                                                                                                                                                                                          17; Conservative 234; Mismatches 149; Indels
                            1 (bases 1 to 7218)
Dorner,F., Schefflinger,F. and Falkner,F.Gunter.
Recombinant fowlpox virus
Patent: US 5670367-A 14 23 SEP-1997;
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1267 gttattgagcacttcgtggacaagccaagtatcttataaa 1306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. 9e-07;
                                                                                                                                                       1929 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The C.elegans Sequencing Consortium.
                                                                                                                                                                                                                          Score 68;
                                                                                                                                 /organism="unknown"
1491 c 1486 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Caenorhabditis elegans.
Caenorhabditis elegans
                                                                                                                                                                                                                          4.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 (bases 1 to 34017)
Swinburne, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 34017)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Z79601.1 GI:3646501
                Jnclassified.
                                                                                                                                                                                                                                            Similarity
                                                                                                                                                       1944 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99069613
 Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  none
                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                            Best Local
                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
ORGANISM
                                                                                                                                                       BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                REFERENCE
                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CEK09A9
                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
```

```
The true right end of clone K09A9 is at 34017 in this sequence. The true left end of clone K09E9 is at 24804 in this sequence. The true right end of clone C02C6 is at 104 in this sequence. The start of this sequence (1. .104) overlaps with the end of sequence 279596. The end of this sequence (33914. .34017) overlaps with the start of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity to Bovine NAH-ubiquinone oxidoreductase 49 KD subunit (SW:NUCM_BOVIN), contains similarity to Pfam domain: PF00346 (Respiratory-chain NADH dehydrogenase, 49 Kd subunit), Score=595.8. F.value=6.4e-215, N=1 cDNA EST EMBL:31472 comes from this gene cDNA EST EMBL:M88875 comes from this gene
                                                                                               Coding sequences below are predicted from computer analysis, using predictions from Genefinder (P. Green, U. Washington), and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    For a graphical representation of this sequence and its analysis see:- http://wormbase.sanger.ac.uk/perl/ace/elegans/seq/sequence?
                                                                                                                                                                                                                                                                                          sequencing consortium are that all bases are either sequenced unambiguously on both strands, or on a single strand with both a dye primer and dye terminator reaction, from distinct subclones. Exceptions are indicated by an explicit note.

Exceptions are indicated by an explicit note.

If may be shorter because we only sequence overlapping sections once, or longer because we arrange for a small overlap between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .11597,11646. .11868,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .11597,11646. .11868,
.12642))
                                                                                                                                                                                          available information.
Current sequence finishing criteria for the C. elegans genome
                                             replaced gi:1515146.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NA EST EMBL.M88875 comes from this gene NA EST EMBL.M88875 comes from this gene DNA EST EMBL.M88875 comes from this gene DNA EST EMBL.T01723 comes from this gene DNA EST YK81b6.3 comes from this gene DNA EST YK81b6.3 comes from this gene DNA EST YK88b5.3 comes from this gene DNA EST YK88b5.3 comes from this gene CDNA EST YK80h1.5 comes from this gene CDNA EST YK70h1.3 comes from this gene CDNA EST YK70h1.3 comes from this gene CDNA EST YK4693.3 comes from this gene CDNA EST YK46593.5 comes from this gene CDNA EST YK454f8.5 comes from this gene CDNA EST YK41845.5 comes from this gene CDNA EST YK41845.5 comes from this gene CDNA EST YK41845.5 comes from this gene CDNA EST YK530c10.3 comes from this gene CDNA EST YK530c10.3 comes from this gene CDNA EST YK530c9.3 comes from this gene CDNA EST YK530c9.3 comes from this gene CDNA EST YK530c9.3 comes from this gene CDNA EST YK530c9.5 comes from this gene CDNA EST YK550f9.3 comes from this gene CDNA EST YK550f9.3 comes from this gene CDNA EST YK550f9.5 comes from this gene CDNA EST YK550c9.5 comes from this gene CDNA EST YK5750c9.5 comes from this gene CDNA EST 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .12642))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            neighbouring submissions.
The true left end of clone K09A9 is at 35278 in
sequence 279596.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement join (9270. .9399,10952.
12089. .12263,12317. .12450,12502.
/gene="K09A9:5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(join(9270. .9399,10952.
12089. .12263,12317. .12450,12502.
/gene="K09A9.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Caenorhabditis elegans"
/db_xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'note="predicted using Genefinder
jes@sanger.ac.uk or rw@nematode.wustl.edu
On Sep 24, 1998 this sequence version rep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /chromosome="X"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="K09A9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .34017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence 279602
```

gene

CDS

```
28762. 28867))
/gene="K0999.2"
/note="Simialrity to Rat RAS-related protein RAB-14
/note="Simialrity to Rat RAS-related protein RAB-14
(SW:RB14_RAT), contains similarity to Pfam domain: PF00071
(Ras family), Score=319.6, E-value=1.2e-92, N=1
cDNA EST yk115b5.3 comes from this gene
cDNA EST yk175b5.3 comes from this gene
cDNA EST yk479h5.5 comes from this gene
cDNA EST yk479h5.5 comes from this gene
cDNA EST yk429f2.5 comes from this gene
cDNA EST yk293f2.3 comes from this gene
cDNA EST yk293f2.3 comes from this gene
cDNA EST yk293f2.3 comes from this gene
                                                                                                                                              VLNGANGVYONSIFGLASELPFKYTNAVIIGNNLCGTFVTLLSMSTKAVTRNILDRSF
SYESTALITUVEGEISFHILKKQRFVGYSTRARERDRANKERAADNEGKMANITATFK
BAPPOLINVFLVFFVTLSIFPGVMYVKDBKKGGTYDFPLPONYFMDYTTFLOFNVFA
FIGSIVAGRKQWPAPNKLWIPVYLRLLYIPFFIFCNYLDFFTTLPVFFESTWLFIVA
                                               GTLMPWNMLITISYDYFESYKMLANSTIDMDTGKVTGDPTVYSSNFQSFQTIASQVPN
                                                                                                    LLLNLLNIFIVVKGGLAGRITVGLSIVAVCVITTMIFIYVETSTWLTGFFTLTIITII
                                                                                                                                                                                                                                                                                                                                                            ASMSFGSGYFSGLSMMYTSKTVDPSKAQVAGMMAGFFLISGIVSGLIFTMVIKFVVTA
/translation="MSAAVELQPLNEAKKVEDAEVEEETPEPEDKGNLVFYIILLHGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement(join(27534. .27696,27760. .27878,28371. .28615,
28762. .28867))
                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(join(27534. .27696,27760. .27878,28371. .28615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AL034559 AL008974 AL008975 AL008981 AL008983 AL009015 AL010138 AL010143 AL010144 AL010144 AL010154 AL010154 AL010157 AL010169 AL010169 AL010169 AL010169 AL010189 AL010180 AL0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25260 GCCGGCCCGGAACAAGGTCTGGATCCCAGTCTACCTCCGTCTCCTCTACATCCCATTCTT 25319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25320 CATCTTCTGCAACTACCTCCTGAGACCCGCACACTCCCGGTCTTCTTCGAATCCACGTG 25379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25380 GCTTTTCATCATGTGGCCGCATCGATGAGCTTCGGAAGTGGATACTTCTCAGGACTCTC 25439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25440 CATGATGTACACTTCAAAGACTGTCGATCCATCAAAGGCTCAGGTGGCTGGAATGATGGC 25499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25500 TGGATTTTCCTCATTTCAGGAATCGTCTCAGGTCTCATTTTCACTATGGTCATCAAG-- 25557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   catttttgtgattggtggaattgccatgtcttttcacatggatacctcagcgctctggc 1157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aatgggatacactccaaacgtcgtgccatctcactactcaagatttgccgctcagctttc 1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              egtttgcactcttatggttggccttctcaccggtggcctgtgggccgttgttattgagca 1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1038 cttcttctgcaactatcgtgtccagacgcgtgcttatcctgttttctttgagtctactga 1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ж
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 34017:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 172; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      yk571g12.5 comes from this gene
yk663a11.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST yk529dll.5 comes from this gene EST yk554d5.5 comes from this gene EST yk567e9.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 4.1e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 65.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ,
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28762. .28867))
/gene="K09A9.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             253305 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches 182; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDNA I CDNA I CDNA I CDNA I CDNA I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PFMAL3P7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                dene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PFMAL3P7
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VORY VEFFIGNOR STREAM 1.25575)

1010 (23324 . 23500,23815 . 23981,24388 . 24482,24569 . 25081,2510,25216,25261 . 25575)

1010 (23324 . 23500,23815 . 23981,24388 . 24482,24569 . 25081,26182 . 25216,25261 . 25575)

1010 (23324 . 23500,23815 . 23981,24388 . 24482,24569 . 25081,26181 . 25216,25261 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 25216,25261 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 25575)

1010 (23324 . 23500,23815 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255081 . 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LAAIHDVCYMSLIADIVAVIGTMDIVFGEVDR"

join(13620 13793,13874 ...14074,14437 ...14532,14631 ...14697,

14741 ...14841.14889 ...15017,15106 ...15351,15397 ...15632,

15939 ...16205,16346 ...16496)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /prodein_1d="Cabol885.1"
/db_xref="C1:3878423"
/db_xref="C1:3878423"
/db_xref="C1:38786423"
/db_xref="C1:38786423"
/translation="ManDSAGDDGNNSDSSQPSQNIEKEEGILDEESSSSESGTGTD
TDKDDLEENNNPRPMLPKQMESRCKHVKDINPSDLSQLLQKKIKCMTCHDSVSFSCAH
TOKTODLEENNNPRPMLPKQMESRCKHVKDINPSDLSQLLQKKIKCMTCHDSVSFSCAH
TOKTODLSENNNPRPMLPKQMESRCKHVKDINPSDLSQLLQKKIKCMTCHDSVSFSCAH
TOKTODLSENNNPRPMLDFALPHAVHHPPILYHDRKSILCGTRCMYTPVRREITHTK
STSDKVEQETRKMEPLAFRELLGYLNFGNTCYMNAVLQLLGHCSPFTQYLIELIPPGG
WSNCSHIPTWTALQMALDLRNMYSDPPLPYLSPWKIITQQDASEFMRNLLDILDRDLK
TCSEYHRINTLIEMGNPEMDYALAMNAPHTKTAISAIFQGVLENQIQCHSCGFRSFTI
                                                                                                                                                                                                                                                  FGPQHPAAHGVLRLVLKLEGEVIIKAIPHIGLLHRATEKLIEHKTYTQALPYFDRLDY
VSMMCNEQAWSLAVEKILGIDIPTRAKYIRTLMGELTRIQNHIMGITTHALDVGAMTP
FFWMFEEREKLFEFSERVSGARMHANYVRPGGVAWDLPIGLMDDIYDWAIKFPERIDE
                                                                                                                                                                                                                                                                                                                                                                                                 LEDMLTENRIWKARTIDIGLVSAADALNWGFSGVWVRGSGIKQDVRKTEPYDAYADME
FDVPIGTKGDCYDRYLCRIEEMRQSLNIVHQCLNKMPAGEIKVDDHKVVPPKRAEMKE
NMESLIHHFKFFTEGFQVPPGATYVPIEAPKGEFGVYLVADGTGKPYRCFIRAPGFAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ENFLDLSIPTYGENEFEEMYASKKLDTPKAPCTSSNIEDGODPGFLYHQGAFNKTSLE
SCLDRFFQNSTLQDDNQYSCSKCEVLVDATKSTKAHRLPEVIIIQLKRFRHTMFGSCK
VGKVVEFPLRSQDFGRWTTSGEPALYDLVGFVVHEGRSLEFGHYVSYCRHEQDNQCGR
                                                                                                                                                   /translation-"MLGRKIAGTCLRANVPSVAATSSTPATQTRNSHTIWYPDAKFER
                                                                                                                                                                                             QFKTGGTLGKLWMSERVSDFDEKIGLDKLEKLAYSDPVMSDNYSGKQREKNLENMILN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Similarity to Yeast ubiquitin carboxyl-terminal hydrolase (SW:UBPD_YEAST), contains similarity to Pfam domain: PF00442 (Ubiquitin carboxyl-terminal hydrolases family 2), Score=55.1, E-value=4.9e-13, N=1; PF00443 (Ubiquitin carboxyl-terminal hydrolase family 2), Score=12.8, E-value=0.00029, N=1 cond EST EMBL:214811 comes from this gene cDNA EST yk527f6.5 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        join(13620. .13793,13874. .14074,14437. .14532,14631. ..
14741. .14841,14889. .15017,15106. .15351,15397. .15632,
15939. .16205,16346. .16496)
γραφα-πκίορΑ9.4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NA EST Yk1064.3 comes from this gene NA EST yk1064.3 comes from this gene NA EST yk111h7.3 comes from this gene NA EST yk1169.3 comes from this gene NA EST yk1169.3 comes from this gene NA EST yk1064.5 comes from this gene NA EST yk11064.5 comes from this gene NA EST yk11064.5 comes from this gene NA EST yk1147.5 comes from this gene NA EST yk1437.5 comes from this gene NA EST yk1437.3 comes from this gene NA EST yk1486.3 comes from this gene NA EST yk488b8.3 comes from this gene NA EST yk488b8.3 comes from this gene NA EST yk488b8.5 comes from this gene NA EST yk48175.5 comes from this gene NA EST yk48715.5 comes from this gene NA EST yk47175.5 comes from this gene NA EST yk47175.5 comes from this gene
                                                                                         /db_xref="SWISS-PROT:093873"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="CAB01882.1"
/db_xref="G1:3878420"
/db_xref="SPTREMBL:Q93871"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDNA
```

gene

CDS

SOURCE

```
The Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSYINGSLLALANCINSLASNRNISKVRVKYRDSKLTHLLKNSLEGNCLVVMIANINP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THEKEFFIINVINGLYKKQISCYKLIENISDNMSSMELKQDITMYDQLVKMKSDEYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VNENFLVNEKVVDKNNVLNGNVMVDENVVDKNNVLNGNVMVDENVMVDENVMVDENVM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VDENVMVDENVMVDENVMVDENVMVDENVMVNENVVVDKNVSVNENIVVSEKHKVGLS
AEGKSESHNKNNKDDIEDNDKDTIKDIHNNNNSSDNNDDEYQSANSPVESDIVKKEKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SRTSFQESNNTLKYAFRARNIKLCATVQTNDNKESDIEKILKKNENLOKEYDTLLGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KKVDSLKDLYQEEKQFLNNLFDTFLEKNLNYVINSKDYNDNNKSLLEEMIFFKHNENK
                                                                                                                                                                                                Bowman, S., Lawson, D., Basham, D., Brown, D., Chillingworth, T., Churcher, C.M., Craig, A., Davies, R.M., Devlin, K., Feltwell, T., Gentles, S., Gwilliam, R., Hamlin, N., Harris, D., Holroyd, S., Hornsby, T., Horrocks, P., Jagels, K., Jassal, B., Kyes, S., McLean, J., Moule, S., Mungall, K., Murphy, L., Oliver, K., Ouali, M. A., Rajandream, M. -A., Rutter, S., Selton, J., Squares, R., Squares, S., Sulston, J. B., Whitehead, S., Woodward, J.R., Newbold, C. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 253305)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="PFC0860w (MAL3P7.1), Kinesin-related protein, len: 1200 aa; similarity: to kinesin-related protein. D.melanogaster kinesin-like protein 674 (TR:P91945) BLAST Score: 664, sum P(2) = 1.9e-67; 288 identity in 707 aa overlap, predicted using hexExon, Pfam: match to PF00225 kinesin, Kinesin motor domain Score 311.54"
   R-CG7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            On May 11, 2001 this sequence version replaced gi:2982540 gi:2982541 gi:2982544 gi:2282541 gi:2282541 gi:228254 gi:2282554 gi:2282558 gi:2282558 gi:2282558 gi:2282558 gi:2282558 gi:2282558 gi:2282558 gi:2282558 gi:2282559 gi:2282559 gi:2282559 gi:2282559 gi:2282559 gi:2282559 gi:2282559 gi:2894589 gi:2882589 gi:2882538 gi:2882539 gi:2894380 gi:4725992. For more information about this sequence or the Malaria Project, see http://www.sanger.ac.uk/Projects/P_falciparum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (17-DEC-1998) P.falciparum Genome Sequencing Consortium
                     repeat; R-FA3 repeat; repli; rep20; rifin; RNA-binding protein; stevor; T-complex protein 1 epsilon subunit; telomere; var. malaria parasite P. falciparum.
                                                                                                                                                                                                                                                                                                                                                                                                                                               The complete nucleotide sequence of chromosome 3 of Plasmodium
   protein kinase;
                                                                                                                                           Eukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium.
1 (bases 1 to 253305)
N-acetylglucosamine-1-phosphate transferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="kinesin-related protein"
| protein_la="cm39023.1"
| db_xref="GI:4493964"
| db_xref="SPTREMBL:097277"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .253305
/organism="Plasmodium falciparum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="PFC0860w, MAL3P7.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 253305)
#Son,D., Bowman,S. and Barrell,B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="PFC0860w, MAL3P7.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nature 400 (6744), 532-538 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:5833"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone="MAL3P7"
458. .4060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /chromosome="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /strain="3D7"
                                                                                                                  Plasmodium falciparum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .4060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lawson, D., Bowman,
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ΩĶ
                                                                                                                                                                                                                                                                                                                                                                                                                   Barrell, B.G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Oliver, K., E
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              falciparum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CB10 1SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99376085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
JOURNAL
REFERENCE
                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
```

FEATURES

TITLE

TITLE

COMMENT

```
EXDKKSHKRRHKHSDKYSSRSRSYSTSSTDR"

Join (7801. 7928,8084. 8234,8392. 8583)

/gene="PFC0870w, MAL3P7.3"

/join (7801. 7928,8084. 8234,8392. 8583)

/gene="PFC0870w, MAL3P7.3"

/note="PFC0870w, MAL3P7.3"

/note="PFC0870w, MAL3P7.3"

/note="PFC0870w, MAL3P7.3"

/len: 181 aa, Similarity to P. falciparum elongation factor 1-beta, (AAF77524) (276 aa), fasta scores: opt: 366, E(): 1.1e-15, 33.2% identity in 141 aa overlap, revised: shortened exon 2, Pfam: match to PF00736 EFIBD, EF-1

guanine nucleotide exchange domain Score 61.10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PFC0870w"
8580. .8580.
8580. .858
8580. .858
8580. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .858
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
90. .868
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        indicate spliting
join(5457. :5577.5689. :5787,5923. :6077,6189. :6743)
/gene="PFC0865w, MAL3P7.2"
/once="PFC0865w, MAL3P7.2"
/once="PFC0865w, MAL3P7.2"
/note="PFC0865w, MAL3P7.2"
/no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xxef="SPTREMEL:097319"
/translation="MANTYDELYPLSYTILQNEGGNTSKIDQANTKRPKKEVINKS
SLIIDIKPYGENTDLDDAVLKLYNTYMEGLYMGKAHKRTPFREGLFKLQVSCYIVDDL
VNTDELLETIENGGLDNEQLQKKKQMDDDEBNYDEDDEGGLVQSAEIISFNKL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="WKDFLGYAENNDLNIFKLYNSEEDCLKNLKYAIELKSEDFKNVN
SLELNDDILNIHENDKNSLLYNLHTNIINLKSSEFNINDLYKDVYTENEFENIKNLKI
NPHILKVVKNTEFYKNFIKDIKNLKNENHYTQYFNDDRKKLFFYNFVKNNLVETKYSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="SPTREMBL:097318"
/translation="MGLFDKIRNIEKLNEAELKNIGNNDSSWHDQYRDSSYIYIGNLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NRLTEGDIVIVESQYGEPIDVNLVRDNETGKSKGYCFLSYADQRSTILAVDNFNGYKL
LERPLVVDHILINYRLENKYKIZROADKNEYKPTGAEGQYGTGYNVVBESEILLSKVPDKIK
NKSNEEKKKLLDDELWALNFEKSIKKDITEPIGHDEKSRHNEGMKEEEEDDEDD
DDEDDDDDDSVDIKYKRHKEKRKSLITKKYDKKEKHKRKSDHRDKHRRRENHSRHREK
                                                                   EKKGEY NPFHNNLTDMONSILY NIINNVENSPHSPRMKKNVAKMLLKGNLNTANFIL
DDDTIKNMNSNKISDKHNMKSNNILNNENGKINDKSKKCKNINNNNNNNNNNNNNN
                                                                                                                                                                                                           NNNNNNNSSSSSSKVDGINILNNSNTNERLHTFSGVYSLNLNDEIKIEINKKDMEKN
KKIPINMETKKKRTMNGTKDPIHKTPYDINIVGILNKEDVSNKSNDYNTNKNIEKNNY
                                                                                                                                                                                                                                                                                                                                                          4028. .4033
/gene="PFC0860w, MAL3P7.1"
/fote="potential splice donor at 3' end of PFC0860w may indicate splicing"
4057. .4062
/note="potential splice donor at 3' end of PFC0860w may
                                                                                                                                                                                                                                                                                      DIHLTSIDTISKIHARDLLKENKRKLENFQENIKHEHKDEVSLYVKKKKIKKKM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8235. .8240
/gene="PFCO870w, MAL3P7.3"
/note="revised splice donor sequence for exon 2 of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="hypothetical protein, PFC0875w"
/protein_id="CAB39024.2"
/db_xref="GI:8052275"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="putative RNA-binding protein"
/protein_id="CAB39067.1"
/db_xref="GI:4494008"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="putative elongation factor"
/protein_id="CAB39068.2"
/db_xref="GI:8052274"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref-"SPTREMBL:097278"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
```

```
KNDLEISYCSONVILVENLTFYETIKIFLLYYNKNVDKYLNKKRTLKIMDLDLYQYL
NDOIKNLMDBVKKKISIFTCFLYKRDIYILDEPFIALDIKYKTKLFREFDKIKKNNI
TETHDIYENNFANDIAVIKSKQIIFKGSKNSFQKLIEYKFTLNIQFNGLPNEEQTN
YLSQEKIMSALNKKKDNNNDDD
NNKNNSVDHIDHLRDILVTNINEFTNNRDIIKKNIIKFIKGTRNENRNCFIFNNNDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YCTYKINELESLKKLLCVLNKFKNILTYQLKTIDIYYTYIYIYTHEKKKLLKNIQDK
DIKYLIEIDPLFFLFFQNFKYFNELNILLMKNNHMQPISYNFAYLADILVRGNENKN
IINSTWHDDNPYDINMYNNHNKYGKYRNNNNNSFYNMEDDFELJDIEBUISSKKKKN
KFIEKEFKYTYRNNKNNENDENDEYGEYDNYDDMIMSNEYNIMKKNIKKQNIFKTCI
KFIEKEFKYTYLLKKOLGSSSFWWYKIYPELLSFGLLIKCYSLFGKYONIDLD
YSTISSNHLKQSTINYFILYKNEMNNNETLGYNKYNLNDDNIKKNLNNSYDKILKKLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TKQDDNAEESHINNDHNDNIKDILKLENNEYNYKLHENSFNYYNSTINSLLQKYC
EKEKINYIDEPLIEDNLYDSTNYLEKANHENEISLGGFEBTITEKKENDSDNY
ELETERNDFONKEVEININLEYNYTSIHSYAYTHSLENMESDFONILNKESDNKIL
ILDGSTYDNIKVVEDVKGNCDMYTLLYDKENKYNYLIKDIDNKNIRECNANFRLSKN
YSYNNNEBEDEDINGAINYNDSNNIYTTPKKNNKEEBENNELYKKLKKRLATDLNBFRIK
FHEHFWRDFYINIYYFLSYVIFFOYFERFKNEIERRKIFERFHYDYIHYDLILFLE
FHEHFWRDFYINIYYFLSYVIFFOYFERFKNEIERRKIFERFHYDYIHYDILLFLE
                                                                                                                                                                                                                                                                   LDFIFILIÄNNIKIDYKQLFIKFENISLMHLIICSIVSFVLLICILNYIIYYKRKKN
MLMTKYRGKSKSITNDKRKKSQQKTYEYGNINYDMSEKYPTHQLKDNSNDFMLEGSDE
DDTCYELDTLHKKQVNSQMCLRIEKIRNDRRESNGHPYDIPMIPLRHNNNINNNINNN
                                               KNNLLTPRYDEINELNKEREITMEYKKTDEKEYQVNNEY INENVGYDEKGGKYKTELK
LNDFFIYKMPMKSMKINAFDTFEKNIFRVVVFLCVCLFIVNICFDINKERKINIENFL
                                                                                                                                                               CCLKINKYYYYYSWLLFYFIILFFYNIIFTLVVYFYVYKCLMNYFILFFLIYFFLMNS
LLFTIICMQFSNNSSINYIATFLLFFLFSSFRLIIHSGASNILTFFVLLIPHSSFCLS
                                                                                                                                                                                                                                                                                                                                                                                                                                             INNNINNNINNNINNNOHRNNQCYLIIQNVNKFYGKKHALKDVSLTLRSNRIFVLGE
NGSGKSTLINIITKMISKDSGEINFFKNSYKNKKKDIYMDVNKNRRNGLCGRICSNGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LNVKRHMKHIDEDIMYEDMSNSNNFVIFGCFKKVYNQLSGDNNLNISDGIQSVCEDSN
SFFNTSGDFVFLLINCIIYLSIVFYKLLQIIPSKERTDKKNESEKTNYEEIIILNNSYN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VGVQRKKEQKKNRYT FFLKNFYLSNKEYKQPKENYEKNRPFFYFIQKLFNLKRGNNV
DENNTTMGIYKYGEKVDSNNYISEDEININNQLNSEGYLKNDIYMNELNDNYNNDFDD
NTVDIEMQISEKSNIKEKMLYKETEIDKYYKGQSDDDNDEEKNFNKISQKYILKNLNI
YFFNDININLKQNFINFNTVDDLSFNIYFNEWYYFSFIVLEYQFNSFILNYNADILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   I K EFVMNR I F K RNCNDT NNY DNNS NNNNNNNDNHNDNHSNNSG I NS S F NNNNNVHNKN I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FFNFIFCGIISIVIYVLVILSYAYNNEILINLSHVLVCIFRIFDSFALSHVLNIRSLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KMRPYKIYTESSIFNNDLNILYFFKYFFCNNKDNLKGSLQTIAYGQNYEINNKFINKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VNLKCDIHINCNQLSGGMKKKVELMINLLRDDKIIFLYKLNDNIDFCSQIYINIILKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   I LLÍ VICEEDEHKDEY KDVY KDKY K DEY KDKY KDKY KDEY KDEY KDTY KDY EGY KYYED
RVY EQDIQLY KGEGIYTNDENQFDDY IDKY SLY DLRGKEDRKOLRENMLKGRHGKNNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NQNEHISEKIQKMNERDYKIELIPTMSIYEHFKIILTFKNIELTNVELKYIINLLMLI
```

```
ó
                                                                                  78852 TITIATICITCATTITGITAAAAAGATGIATATTITATAAAAATATTIATGIAATA 78911
                                                                                                                               1266 tgitattgagcacttcgtggacaagccaagtatcttataaaatatttatagcattagagta 1325
                              0; Gaps
3.4%; Score 47.8; DB 3; Length 253305; 61.8%; Pred. No. 0.25;
                              47; Indels
                            0; Mismatches
                              Conservative
            Best Local Similarity
Matches 76; Conserv
                                                                                                                                                                                                     78972 ATA 78974
                                                                                                                                                                        1386 aaa 1388
 Query Match
                                                                                                                                                                                                                                               RESULT 12
                                                                                                                                                                                                   Оp
                                                                                                                                           g
                                                          ò
                                                                                     g
                                                                                                                  ò
                                                                                                                                                                        ò
```

F-Box A protein (fbxA) gene, complete cds.

AF151733 3885 bp D Dictyostellum discoideum AF151733

DEFINITION

AF151733 COCUS ACCESSION

VERSION KEYWORDS SOURCE

AF151733.1 GI:5163417

ORGANISM

AUTHORS

REFERENCE

07-MAY-2001

Dictyostellum discoideum.
Dictyostellum discoideum
Eukaryota; Mycchozoa; Dictyostellum.
1 (Dases 1 to 3885)
Nelson,M.K., Clark,A., Abe,T., Nomura,A., Yadava,N., Funair,C.J.,

29-MAR-2000

INV

```
Jermyn, K.A., Mohanty, S., Firtel, R.A. and Williams, J.G. An F-Box/WD40 repeat-containing protein important for Dictyostelium cell-type proportioning, slug behaviour, and culmination Dev. Biol. 224 (1), 42-59 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ĪQQLPHQVLSLIQMNTLDAKIQHLSMISGMPATIGQESPINKNSSDNPKPNAYNKRDN
NSYIPDEEFINWKSHYTEKHKQSKRWVNMEPIRITPLKGHNRAIKAVKSEGNSAITVS
TEKKIKFWNLNTGQCIGDYEGESGVLSVEYDHTQKSSCIWPLSDYTKVHIGHKNGTVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SSHERGIYLSKGVAEFNISPENMYELLLDISSRSKWDFHCREAHIIEEYDHLNHIHL
NFTNPLISNLDMNLYRSCKYDPQERLFVIAMRSIELEDGDVDQFECLPNGWVIQGLRG
QKDKCKMTFVQQCDLRDIELQRIPGYKSFNSKERLEDFQFLTLFPATVSGRLAKIFES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IELYISNNYMDIETKDIRIS MAKAEKEVNEMFGTTNPDYGWKIYLKKLDMEILIKKT
TSGYYMIGKGSFSSRYSPELLADVLYQKNPFEWDTFYDKTKLVESINSSIREVEVHYR
MWRNTITMRLLQSVKKGPGNFSSVHWRSICSPNYQVADGIEVHYLPTALLNYGLGDGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MVDF1EQP1EV1HTSRPTNLADGFDFTFPGKYLTWEHT11HYMDVETSTLLMNELNAH
KKTYOGKIYAQHELGNKGTVFTTSDSKSAKWADLTNGTCHTNTLVGHSYAVOLTBPIG
DYMALTGSTDKTLKLMDLROASTFSSYSTRHTGPIRGISYOEKNGTYLSGSDDGS1
AFNLDNWNLSNISVVKKPIFNNTNVPEIPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAD40673.1"
/db_xref="G1:5163418"
/translation="MOYVNGNDISSQSIHEVLELAFSTKIPWTKLEYESSEKHIIHSY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                 Allegheny College, 520 North Main
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                     2 (bases 1 to 3885)
Nelson,M.K., Clark,A., Abe,T., Nomura,A., Firtel,R.A. and
Williams,J.G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 3885;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INLGTFKDSKRLHNHESAVTCIESDEAGFISGSQNGLVLRWDF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29; Indels
                                                                                                                                                                                                                                                                         /organism="Dictyostelium discoideum"
/db_xref="taxon:44689"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 44.6; DB 3;
Pred. No. 0.95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /function="regulate cell fate" /note="FbxA"
                                                                                                                                                                                                                                                                                                                                                     .237,379. .>3885)
                                                                                                                                                                                                                                                                                                                                                                                         /product="F-Box A protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product-"F-Box A protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1358 gaataaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                         Direct Submission
Submitted (14-MAY-1999) Biology,
Street, Meadville, PA 16335, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                               join(1. .237,379. .3885)
/gene="fbxA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 309 TATTTAAATAAATAAAAGAAAAAAAAAAAAA 339
                                                                                                                                                                                                                                                                                                                                   /map="position 6110"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                602 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="fbxA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.2%;
                                                                                                                                                                                                                                                                                                                                                                     /qene="fbxA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3985 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            567 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                       join(<1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۵
                                                                               20359235
                                                                                                   10898960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AF151111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 62
                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                       mRNA
                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                           AUTHORS
                                                                                                                                                                                                 JOURNAL
                                                               JOURNAL
                                                                               MEDLINE
                                                                                                     PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF151111
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                       FEATURES
                         TITLE
                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

ö

Gaps

. 0

Indels

29;

Mismatches

0;

```
Conservative
   62;
                                                                                                                                                                                              RESULT 14
AC005170
                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                         1358
 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                      g
                                                                                                         δ
                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IQQLPHQVLSLIQMNTLDAKIQHLSMISGMPATIGQESPINKNSSDNPKPNAYNKRDN
NSYIPDEEFINWKSHYTEKHKQSKRWVNMEPIRITPLKGHNRAIKAVKSEGNSAITVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TKKITQSKIVAQHELSNKGIVFTISSDKSAKVWDLTNGTCINTLVGHSYAVNCIEPIG
DYMALTGSTDKTLKLWDLRQASTFISSYSTKHTGPIRCISYQEKNGIVLSGSDDGSII
AFNLDNWNLSNISVVKKPIFNNVIGNIGTTTTTTTTTTTTTTTTTTTTTPPPIPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MVDFIEQPIEVIHTSRPTNLADGFDFTFPGKYLIWEHTIIHYWDVETSTLLWYELNAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TEKKIKFWNLNTGQCIGDYEGESGVLSVEYDHTQKSSCIWPLSDYTKVHIGHKNGTVT
                                                                                                                   Bukaryota; Mycetozoa; Dictyostellida; Dictyostellium.
I (bases 1 to 3985)
Ennis, H.L., Dao, D.N., Pukatzki, S.U. and Kessin, R.H.
Dictyostellium amoebae lacking an F-box protein form spores rather than stalk in chimeras with wild type
Proc. Natl. Acad. Sci. U.S.A. 97 (7), 3292-3297 (2000)
Dictyostelium discoideum cheater ChtA (cht) gene, cht-A allele,
                                                                                                                                                                                                                                                                                                A F-box protein is essential for development in Dictyostelium
                                                                                                                                                                                                                                                           Dao'D., Ennis, H.L., Franke, J., Kessin, R.H., Nelson, M.K. and Pukatzki, S.
                                                                                                                                                                                                                                                                                                                                                          Dao.D., Ennis,H.L., Franke,J., Kessin,R.H., Nelson,M.K. and Pukatzki,S.
                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
Submitted (13-MAY-1999) Anatomy and Cell Biology, Columbia
University, 630 W 168 Street, New York, NY 10032, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INLGTFKDSKRLHNHESAVTCIESDEAGFISGSQNGLVLRWDF"
575 c 608 g 1243 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="F-box protein with WD40 domains"

    .3985
/organism="Dictyostelium discoideum"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          join(<1. .237,379. .>3885)
/gene="cht"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAD37799.1"
/db_xref="G1:5007062"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /allele="A"
join(1. .237,379. .3885)
/gene="cht"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="cheater ChtA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product-"cheater ChtA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="AX3K"
/db_xref="taxon:44689"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                     Dictyostelium discoideum.
Dictyostelium discoideum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
                                                  AF151111.1 GI:5007061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="cht"
                                                                                                                                                                                                                                           (bases 1 to 3985)
                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 3985)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <1. .>3885
                   complete cds.
                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                  discoideum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
 DEFINITION
                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                    ACCESSION
                                                                                                                                       REFERENCE
                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                           MEDLINE
                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                          JOURNAL
                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                  VERSION
```

```
prediction programs including GRAIL

(ftp://arthur.epm.ornl.gov/pub/xgrail), Genefinder (Phil Green, University of Washington), Genscan (Chris Burge, Holl Green, Littp://gnomic.stanford.edu/GENSCANN.html), and NetPlantGene (http://www.cbs.dtu.dk/services/NetGene2/), searches of the complete sequence against a peptide database and plant EST.

Annotated genes are named to indicate the level of evidence for their annotation. Genes with similarity to other proteins are named after the database hits. Genes without significant peptide after the database hits. Genes without significant peptide similarity but with EST similarity are named as 'unknown' proteins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Viridiplantae: Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Sosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

Lin,X., Kaul,S., Rounsley,S.D., Shea,T.P., Benito,M.-I., Town,C.D., Fulil,C.Y., Mason,T.M., Bowman,C.L., Barnstead,M.-I., Ronning,C.M., Koo,H., Moffat,K.S., Cronin,L.A., Shen,M., VanAken,S.E., Umayam,L., Tallon,L.J., Gill,J.E., Adams,M.D., Carrera,A.J., Creasy,T.H., Goodman,H.M., Somerville,C.R., Copenhaver,G.P., Preuss,D., Nierman,W.C., White,O., Eisen,J.A., Salzberg,S.L., Fraser,C.M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Medical Center Dr., Rockville, MD 20850, USA
On Dec 17, 1999 this sequence version replaced gi:3738313.
The sequence and annotation of chromosome 2 were merged from those
of the individual clones on this chromosome after removing
overlaps. For detailed information, please see the TIGR web site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genes without protein or EST similarity, that are predicted by two or more gene prediction programs over most of their length are annotated as 'hypothetical' proteins. Genes encoding tRNAs are predicted by tRNAscan-SE (Sean Eddy,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          http://genome.wustl.edu/eddy/tRNAscan-SE/). Simple repeats were identified by repeatmasker (Arian Smit, http://ftp.genome.washington.edu/RM/RepeatMasker.html). Genes are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
Submitted (09-MAR-2000) The Institute for Genomic Research, 9712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           We thank the CSHL/WashU/ABI consortium for sequencing BAC clones
Sequence and analysis of chromosome 2 of the plant Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AC005170 110211 bp DNA PLN 05-APR-2000 Arabidopsis thaliana chromosome II section 135 of 255 of the complete sequence. Sequence from clones F27L4, T29E15. AC005170 AE002093 AC005170.2 GI:6598448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genes were identified by a combination of three methods: Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    numbered from the top to bottom of the chromosome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (http://www.tigr.org/tdb/at/at.html).
                                                                                                                                                                         gaataaaataattattaaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                     309 TATTTAAATAAATAAAGAAAAAAAAAA 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nature 402 (6763), 761-768 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 110211)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thale cress.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Venter, J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20083487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10617197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lin, X.
```

F6P23, F5J6, T17A5, and T13L16, the ESSA group for sequencing clone F13D4, and Scott Jackson, Jiming Jiang, Klaus Meyer, Eric Richards

Score 44.6; DB 3; Length 3985; Pred. No. 0.96;

3.2%;

Best Local Similarity

Query Match

```
QKRVENGKNWNKIRSCLVESKVCSKLEAKFVNVPVNSFYKEHLTALQSGCCKPSDECG
FEYVNPTTWTKNTTGTHTNPDCQTWDNAKEKLCFDCQSCKAGLLDNVKSAWKKVAIVN
IVFLVFLIIVYSVGCCAFRNNKRDDSYSRTYGYKP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product-"putative senescence-associated protein 5"
/protein_id="AAR18611.1"
/db_xref="G1:6598449"
/translation="MPLLILLVFC1TVPAFVVTNKGAGEAIEGKGYKEYKLGDYSTWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MKNVNRVFFCKSLSLVFLVPSFTRSHIRFTYSAAGASSPNRAIH
CMASDSPQSCDGSVSSPPNVAAVPSSSSSSSASSAIDFLSLCTRLKTTPRAGWIKRDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KDPESIADHMYRMGLMALISSDIPGVNRDKCMKMAIVHDIAEAIVGDITPSCGISKEE
KNRRESEALEHMCKLLGGGERAKEIAELMREYEENSSPEAKVVKDFDKVELILQALEY
and Satoshi Tabata for helpful assistance. In addition, we would like to thank the TCR Bioinformatics Department, especially Lixin Zhou, Hanif Khalak, Michael E. Heaney, Lily Fu, Feng Liang, Jeremy Peterson, Michael Holmes, and Delwood Richardson for software and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(6654. .612)
/rpt_family="(GAA)n"
join(c9531. .9882,9709. .9779,9866. .9947,10054. .10169,
10568. .>10396)
/gene="At2g23830"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .7726,7811. .7848,7929. .8039,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .7726,7811. .7848,7929. .8039,
                                                                                                                          supported by the National Science Foundation. Energy and the US Department of Agriculture.
                                                                                                                                                                                                                                                                                                                                                                                                                    .3012))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement(join(1744. .2058,2731. .3003))
/gene="At2g23810"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(<1. .2793)
/note="Sequence from clone F27L4"
complement(356. .401)
/rpt_family="(TAA)n"
complement(join(1549. .2058,2731. .3
/gene="AL2923810"
                                                                                                                                                                                    Address all correspondence to: at@tigr.org
Location/Qualifiers
                                                                                                                                                                                                                                                   /organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EQGKFQTNIGKAWASEIVSRRRKQH'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    join(6480. .6749,7602.
8152. .8268,8487. .8557)
//gene="At2g23820"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="AAC63656.1"
/db_xref="G1:3738315"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement(1549. .3012)
/gene="At2923810"
/note="F27L4.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="unknown protein"/codon_start=1
                                                                                                                                                                                                                                                                    /cultivar="Columbia"
/db_xref="taxon:3702"
/chromosome="II"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <9531. .>10396
/gene="At2g23830"
/note="T29E15.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="At2g23820"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'note="T29E15.2"
                                                                                                                                                                                                                           1. .110211
                                                                                   database support
                                                                                                                          This work was
Department of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    repeat_region
                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
```

```
/rpt_family="(TAAAA)n"
complement(join(<20442. .20537,20617. .20691,20894. .20948,
                                                                         /translation="MSNNELLEIEPMYLQFPFELKKQMSCSLYLTNKTDNNVAFKVT
TNRNNYCVRPNYGLILPKSTCKVLVTWQAQKEVPSDMQSFEKFMIQSVLASPGVTAKE
VTRBMFSKESGHVVEFTKLRYTYVCSTTTNITSSPRTRRGFIFQCFC"
complement(11332. .11371)
/rpt_family="(TAAA)n"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /rpt_family="(TA)n"
complement(join(<31877. 32176,32267. 32407,32498. 32893,
33162. 35713.3886. >>36147))
/gene="At2g23880"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="MAHFSARLKLLSSNDGLSFGVDSRDQFRQSLYMAGGGSPLVPIR
MSRLKFCAFTESYSFPYKRKINDLDDTDTRNLDIDEDNDEWDFDGDDGLETDDHLS
GFRGLVLDISYRPVYVCKRRAIGLEYMDKADVLEYYDQTVSSPTGSFYIPAVLRVPH
LLQVVKRRRVKNSLSRKNILLRDDTTCQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /protein_id="Aac63659.1"
/db_xref="G1:3738318"
/translation="MTYNPKNYCVRPNYGLILPKSTCKLKRKPGPSDMQSNEKFMIQR
VKASPAVAKKVTLFPRKRESGHLVEETKLRVTYVCSTTTNTTSPPRRNGLYFNVFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                      complement(join(20442. .20537,20617. .20691,20894. .20948,
2145. .21485)
/gene="At2923840"
/note="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1282 giggacaagccaagtatcttataaaatatttatagcattagagtatacttgttatatgtig 1341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            join(<229999. .23070,23189. .23296,23402. .>23554)
/gene="At2g23860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             join(22999. .23070,23189. .23296,23402. .23554)
/gene="At2g23860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 110211;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(<31877. .>36147)
/gene="At2g23880"
/note="T29E15.8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 44.6; DI
Pred. No. 1.5;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                              complement(<20442. .>21485)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27493. .27571
/rpt_family="(TAAAA)n"
complement(29076. .29146)
/rpt_family="PoLY_A"
29302. .29885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(22086. .22781)
/gene="At2g23850"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="AAC63658.1"
/db_xref="G1:3738317"
                                   /protein_id="AAC63657.1"
/db_xref="G1:3738316"
/note="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="unknown protein"
                                                                                                                                                                                                   'rpt_family="(TAAAA)n"
.5853. .15918
                                                                                                                                                                                                                              /rpt_family="(CAAAA)n"
16051. .16136
                                                                                                                                                                                                                                                                                                                                                                                 /gene="At2g23840"
/note="T29E15.4"
                                                                                                                                                                                                                                                                                                                                       /gene="At2g23840"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="At2g23860"
/note="T29E15.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="At2g23870"
                                                                                                                                                                                                                                                                                                                          21145. .>21485))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="T29E15.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="T29E15.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <22999. .>23554
                       /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
                                                                                                                                                                                                                     .15918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .31519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.2%;
illarity 63.6%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RHFLFTSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /bsengo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'pseudo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 68; Conserv
                                                                                                                                          repeat_region
                                                                                                                                                                                repeat_region
                                                                                                                                                                                                                        repeat_region
                                                                                                                                                                                                                                                               repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                     mRNA
                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    join(9531. .9582,9709. .9779,9866. .9947,10054. .10169,
10268. .10396)
```

```
·.
                                                                                                                                                                                                     ORI region.

Daker's yeast.

Mitochondrion Saccharomyces cerevisiae

Mitochondrion Saccharomycetas:

Saccharomycetales; Saccharomycetes;

Saccharomycetales; Saccharomycetes;

Saccharomycetales;

Saccharomycetales;

Saccharomycetes;

Skelly, P.J. and Clark-Walker, G.D.

Sequence rearrangements at the ori 7 region of Saccharomyces cerevisiae mitochondrial DNA

J. Mol. Evol. 32 (5), 439-442 (1991)
Gaps
                                                                                                                                                26-FEB-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 366;
                                         32; Indels
                                                                                                                                                                                                                                                                                                                                                                                7. 366./
/organism="Saccharomyces cerevisiae"
/organelle="mitochondrion"
/db_xref="taxon:4932"
                                                                                                                                                  PLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 3.2%; Score 43.8; DB 8; Best Local Similarity 66.3%; Pred. No. 1.1; Matches 63; Conservative 0; Mismatches 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1354 tgtggaataaaataattattaaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Search completed: February 28, 2002, 00:56:47 Job time: 5649 sec
                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                               SCORI7 366 bp DNA
S.cerevisiae DNA for ori 7.
X59536
X59536.1 GI:14234
                                                                                                                                                           DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                      JOURNAL
MEDLINE
                                                                                                                  RESULT 1:
SCORI7/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ٥y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
```

THIS PAGE BLANK

Oligonucleotide Di Oligonucleotide Di Novel human polynu H. pylori secreted H. pylori secreted Human cervical can

D2 D1 D1 D1

Oligonucleotide Oligonucleotide Human secreted pro Genomic fragment # Soybean 318013 req Human secreted pro Pea blight resista Human secreted pro Human secreted pro

Human polynucleoti Human tumour necro Human tumour necro Nucleotide sequenc Human colon cancer

Tomato spotted wil Tomato spotted will TSWV S RNA. Tomat Tomato spotted wil Cucumber LBLOX DNA RNA encoding non-s

Human survival mot Clone am856_3 enco Gene encoding a su Staphylococcus aur Staphylococcus aur

Human survival mot Survival motor neu Survival motor neu

```
potassium dependence; Saccharomyces cerevisiae; potassium-agonist;
potassium-antagonist; drug screening; nematocide; anthelminthic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  potassium channel; nematode; polyadenylation site;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORK potassium channel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAC89646
AAF88022
                                                                                                                                                                                                                                                                                                      AAF85681
AAC79950
                                                                                                                                                                                                                                                                                                                                                 AAI59388
AAV39085
                                                                                                                                                                 AAT18831
AAX80667
                                                                                                                                                                                                                               AAV74898
                                                                                                                                                                                                                                           AAA26360
                                                                                                                                                                                                                                                           AAF28544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAX86461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
1.1305
/*teg= a
/*roduct= CORK potass
1359..1334
/*tag= b
                                             AAF58238
                                                                          AAT67765
                                                                                                                                                                                                             AAZ55832
                                                                                                                                                                                                                                                                           AA161373
                                                            AAF65894
                                                                                                                                     AAT18828
                                                                                                                                                                                                 AAA10594
                                                                                                                                                                                                                                                                                         AAC93411
                                                                                                                                                                                                                                                                                                                                                                                AAA37772
                                                                                                                                                                                                                                                                                                                                                                                               AAV07654
                                                                                                                                                                                                                                                                                                                                                                                                               AAH3317.
                                                                                        AAT77
                                                                                                      AAH71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAT18168 standard; cDNA; 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (AMCY ) AMERICAN CYANAMID CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94US-0332312.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORK potassium channel gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95WO-US14364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                     11164
11179
2215
2621
2621
2916
2916
2964
                                                                                                                                                                                                                                                                                      1338
1667
1851
3076
5761
1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cardiac disorder; ss.
31-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9613520-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-OCT-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               09-MAY-1996
AAT18168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAT18168
RESULT
   000
                                                          0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                         00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ΡF
                                                                                                                     (without alignments)
10507.439 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            oligonuclectide Di
Oligonuclectide Di
Oligonuclectide Di
Oligonuclectide D2
Oligonuclectide D2
Oligonuclectide D1
Oligonuclectide D1
Oligonuclectide D1
Oligonuclectide D1
Oligonuclectide D1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORK potassium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                               ; Search time 113.25 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIDSZ/gcgdata/geneseq/geneseqn/NA1981.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1981.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1981.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1981.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1986.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1986.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1986.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1980.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1980.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1980.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1991.DAT:*
| SIDSZ/gcgdata/geneseqn/NA1991.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1991.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1991.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1991.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1991.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1995.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1995.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1995.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1995.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1995.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1997.DAT:*
| SIDSZ/gcgdata/geneseq/geneseqn/NA1997.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /SIDS2/gcddata/geneseq/geneseqn/NA1999.DAT:*/SIDS2/gcgdata/geneseqn/geneseqn/NA2000.DAT:*/SIDS2/gcgdata/geneseqn/NA2001.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                        N_Geneseq_1101:*
1: \Side Side \gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamma\gamm
              GenCore version 4.5
(c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                      930621 segs, 428662619 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                     February 27, 2002, 23:59:59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAF58252
AAF58254
AAF58257
AAF58259
AAF58262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF58255
AAF58252
AAF58254
AAF58257
AAF58259
                                                                                                                                                                                                                                                                                                                                                                                                             summaries
                                                                        OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAT18168
                                                                                                                                                                                                                                        Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0% Maximum Match 1698, Listing first 45 s
                                                                                                                                                              US-08-816-01 F-36
                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                          IDENTITY_NUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 44444440000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score
                                                                                                                                                                              Perfect score:
                                                                                                                                                                                                                            Scoring table:
```

Database :

192

8 9 10 11

0000

Š.

Result

Searched:

Sequence:

ou:

Run

780 780 840 900 900 960 960

```
ttctttgagtctactgacattttgggattggtggaattgccatgtcttttcacatgga
                                                                                                                                                                                                                                                                                                                                                                                                              cccgttgttattgagcacttcgtggacaagccaagtatcttataaatatttatagcatta
 gtctatttcggcatatcgttggtgatccttctggtgtgtgcaattgcacttttctttatc
                      acaaagcaagatttctaccactatcaccatcaaaaaggaatggaaattcgcgaaaaggcg
                              ctcttcaatgtttggttctgctttgccgttactctcacaatcttccctgttatgatgacc
                                                                                                                               ctcttcaatgtttggttctgctttgccgttactctcacaatcttccctgttatgatgacc
                                                                                                                                                                                                                                        gettecaagatteactggeegacaeeeegttaeeteaaatttgeeatattgegtget
                                                                                                                                                                                                                                                  ttctttgagtctactgacatttttgtgattggtggaattgccatgtcttttcacatgga
                                                                                                                                                                                                                                                                                                                                                                     tacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctcactactcaaga
                                                                                                                                                                                                                                                                                                                                                                                           tacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctcactactcaaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1261 cccgttgttattgagcacttcgtggacaagccaagtatcttataaaatatttatagcatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rron-transfer group; ETM; mismatch; genotyping;
expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oligonucleotide D1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1381 aaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Electron-transfer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |||||||||
|1381 aaaaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAF58252
                                                                                                                                                                                                                                                                                                     1021
                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                        1141
                                         661
                                                               721
                                                                                   721
                                                                                                                             781
                                                                                                                                                                        841
                                                                                                                                                                                             901
                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                           196
                                                                                                                                                                                                                                                                                 1021
                                                                                                                                                                                                                                                                                                                          1081
                                                                                                                                                                                                                                                                                                                                                                     1141
                                                                                                                                                                                                                                                                                                                                                                                                              1201
                                                                                                                                                                                                                                                                                                                                                                                                                                   1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                     661
                                                                                                          781
                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAF58252
                                         Q
                                                                                 qq
                                                                                                                                                                     g
                    δ
                                                               ò
                                                                                                          ò
                                                                                                                             g
                                                                                                                                                  ŏ
                                                                                                                                                                                             ò
                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                 Qγ
                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                      Op
                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                  Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         099
                                                                determine
                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                            caenorhabditis elegans, with 2 pore-forming domains between transmembrane helix domains. The sequence has been isolated by complementation of the potassium-dependent phenotype of Saccharomyces cerevisiae CY162 (trk1-delta) on low-potassium medium. A consensus polyadennylation site is found in the 3 'untranslated sequence, and is followed by a tract of 15 consecutive A residues. The DNA may be inserted in a vector and expressed in a host cell to assay substances to determine effects on cell growth. Potassium-agonists or potassium-antagonists identified by this method may be used as nematocides, anthelminthics or in therapy of cardiac
                                                   Potassium channel genes from Drosophila melanogaster and Caenorhabditis elegans - useful in assaying substances to determine effects on cell growth, and in inhibiting nematode and insect pests
                                                                                                                                                                                                                                                                                                                                                                                           aacgcaagcattaatgttttcaacctgttcctcattattgctggtcccctgatctaccgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atggtaataatcaaccgatcgaacacctatgccgttgagcaggaagcatttccaagagac
                                                                                                                                                                                                                                                                                                                                                         atggtaataatcaaccgatcgaacacctatgccgttgagcaggaagcatttccaagagac
                                                                                                                                                                                                                                                                                                                                                                               aagtacaatattgtctactggctcgtcattcttgttggattcggagttcttctgccatgg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtggagacatggtattcgaaagaattcatgggatctttgacgattggctcacaacttcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gtetttgeteeggtttgetteaacategteaacetgacaateatteteateetegteatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        glotatttoggcatatogttggtgatocttotggtgtgtgtgaattgcactttotttato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gttctggagcccactgaagattccatgtcctggttttttctgggtaactcttggaatggcg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tttocgcacacctacattggcgctctcttgattggaaacaacatttgcggattgctgata
                                                                                                                                                                                                                                                                                          Length 1388,
                                                                                                                                                                                                                                                                                                                .
0
                                                                                                                    sequence encodes potassium channel CORK protein from
                                                                                                                                                                                                                                                                                                                1; Indels
                                                                                                                                                                                                                                                           318 C; 269 G; 460 T; 0 other;
                                                                                                                                                                                                                                                                                          17;
                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                        Score 1386.4;
Pred. No. 0;
                                                                                                                                                                                                                                                                                                     ed. No. 0;
Mismatches
                                                                                                                                                                                                                                                                                                               ;
0
                                                                                              Claim 13; Fig 9; 79pp; English
                                                                                                                                                                                                                                                                                        99.98;
                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 99.9
Matches 1387; Conservative
                                                                                                                                                                                                                                                           Sequence 1388 BP; 341 A;
Price LA;
                    WPI; 1996-239450/24.
P-PSDB; AAR92315.
MH,
Pausch
                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                    The
g
                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Op
```

1020 1020 1080 1080 1140 1200 1200 1260

Fri Mar

```
group, useful as labels in allowing repeat analyses on
                                               The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
ttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaatggaaattc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               710 gcgaaaaggcggaaaccgacagaccgtctccatccattctttggaccacattcacaaact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaatcttccctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301; Indels
                                                                                                                                                                                                                                                                                                                                                                Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 936 BP; 4 A; 144 C; 7 G; 5 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.1%; Score 85; DB 2;
0.9%; Pred. No. 8e-13;
ve 431; Mismatches 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nucleic acids containing electron-transfer hybridization assays, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (CLIN-) CLINICAL MICRO SENSORS INC
                                                                                                                tattaaaaaaaaaaaaaaa 1388
                                                                                                                                              725 WWWWWWWWWWWWWWWW 743
                                                                                                                                                                                                                              AAF58254 standard; DNA; 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0145695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-MAR-2000; 2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.9%;
                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                  Oligonucleotide D1875
                                                                                                                                                                                                                                                                                                                                                                                   gene expression; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
nes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26-JUL-1999;
                                                                                                                                                                                                                                                                                                 24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Si
Matches 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Umek RM;
                                             1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 029
                                                                                                                1370
                                                                                                                                              QQ
                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                             δ
                                                                              g
                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
0
                                                                                                                                                                                               group, useful as labels in allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cttatcctgttttctttgagtctactgacatttttgtgattggtggaattgccatgtctt 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctc 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1250 gtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatcttataaatat 1309
                                                                                                                                                                                                                                                                                            The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gatecatagttgettecaagatteactggeegacaeceeegttaeetteaaatttgeeataa 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tettgegtgetetttteatteeattettettettetgeaactategtgteeagaegegtg 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       710 gegaaaaggeggaaacegaeagaeegteteeateeattetttggaeeacatteacaaaet 769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     650 ttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaatggaaattc 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaatcttccctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattatgtctgaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         actactcaagatttgccgctcagctttccgtttgcactcttatggttggccttctcaccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 имитимититимититититимитимити
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 85; DB 22; Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 936 BP; 4 A; 139 C; 10 G; 7 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8e-13;
                                                                                                                                                                                         Nucleic acids containing electron-transfer hybridization assays, e.g. for genotyping,
                                                                                                                                                                                                                assays, e.g. for genotyping,
                                                                                                                                                                                                                                                               Example 6; Page 127; 159pp; English
                                                                                              INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7; Conservative 431;
                                                                                            (CLIN-) CLINICAL MICRO SENSORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.18;
            26-JUL-2000; 2000WO-US20476
                                           99US-0145695
2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                 monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 98;
                                                                                                                                                            WPI; 2001-159728/16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best_Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                              single surface
                                                             17-MAR-2000;
                                           26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                              Umek RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                485
```

ò g ŏ g ò g ŏ qq ò qq ò g δ g óγ qq ò o ò

à පු ö

Gaps

; ;

64

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1250
                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          725
qq
                                                                                                                                                                                         ò
                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                       gatecatagttgettecaagatteaetggeegaeaeceegttaeeteaaatttgeeataa 1009
                                                                                                                                                                         tttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctc 1189
                                                                                                                                                                                                                                         gtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatcttataaatat 1309
                                                                                                                                                                                                                                                                         Nucleic acids containing electron-transfer group, useful as labels in
                                                                                                                                                                                                                                                                                         ttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattatgtctgaaa
                                        acgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgattg
                                                                                                       tettgegtgetetttteatteeattettettettetgeaactategtgteeagaegegtg
                                                                                                                        actactcaagatttgccgctcagctttccgtttgcactcttatggttggccttctcaccg
                                                                                         \verb"ottatcctgttttctttgagtctactgacatttttgtgattggtggaattgccatgtctt"
                                                                                                                                                                                         genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                   ETM, mismatch;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                 ВР
                                                                                                                                                                                                                                                                                                                                                                 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                 Electron-transfer group; gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                 Oligonucleotide D1954.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                AAF58257 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200107665-A2.
                                                                                                                                                                                                                                                                                                                                                                                                 24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                 AAF58257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Umek RM;
                                                                                                                                                                        1130
                                                                                                                                                                                        485
                                                                                                                                                                                                        1190
                                                                                                                                                                                                                                                                                                                        725
       830
                       185
                                                       245
                                                                                        305
                                                                                                                        365
                                                                                                                                                        425
                                                                                                                                                                                                                        545
                                                                                                                                                                                                                                                                                                                                                        AAF58257
      à
                      g
                                                                      δ
                                                                                                                      qq
                                                                                                                                                        g
                                                                                                                                                                                       qq
                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                       ά
                                                                                                                                                                                                                                                       ద
                                       ò
                                                     g
                                                                                       a
                                                                                                       ò
                                                                                                                                       δý
                                                                                                                                                                        à
                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                       q
```

```
hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       950 gatccatagttgcttccaagattcactggccgacaccccgttacctcaaatttgccataa 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1010 tettgegtgetetttteatteeattettettettettetgaaetategtgteeagaegegtg 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1070 cttatcctgttttctttgagtctactgacatttttgtgattggtggaattgccatgtctt 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1130 tttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctc 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1310 ttatagcattagagtatacttgttatatgttgtttttattaagctgtggaataaaataat 1369
                                                                                                                              The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (FTM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               890 acgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgattg 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                650 ttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaatggaaattc 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           710 gcgaaaaggcggaaaccgacagaccgtctccatccatttttggaccacattcacaaact 769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          830 ttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattatgtctgaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             actactcaagatttgccgctcagctttccgtttgcactcttatggttggccttctcaccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatcttataaatat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   770 gttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaatcttccctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 936;
                                                                                                                                                                                                                                                                                                                       Sequence 936 BP; 5 A; 142 C; 7 G; 6 T; 776 other
                                                                                                                                                                                                                                                                                                                                                                                                           DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                      Score 85; DB 2:
Pred. No. 8e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              7; Conservative 431; Mismatches
                                                                              English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1370 tattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                        6.1%;
0.9%; F
                                                                           159pp;
                                                                                                                                                                                                                                                                       monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WWWWWWWWWWWWW
                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                            single surface
```

ö

2

```
group, useful as labels in allowing repeat analyses on
   tettgegtgetetttteatteeattettettettetgeaactategtgteeagaegegtg 1069
                                                                                                                                 1130 tttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctc 1189
                                                                                                                                                                                                 1190 actactcaagatttgccgctcagctttccgtttgcactcttatggttggccttctcaccg 1249
                                                                                                                                                                                                                                                                1250 gtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatcttataaatat 1309
                                                                                                                                                                                                                                                                                                                                 The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                 cttatcctgttttctttgagtctactgacatttttgtgattggtggaattgccatgtctt
                                                                                                                                                                                                                       Electron-transfer group; ETM; mismatch; genotyping; gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 936 BP; 5 A; 139 C; 10 G; 6 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              electron-transfer
y. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 6; Page 128; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВР
                                                                                                                                                                                                                                                                                                                                                                                                  tattaaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                725 WWWWWWWWWWWWW 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard; DNA; 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0145695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nucleic acids containing el
hybridization assays, e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                monitoring gene expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oligonucleotide D2007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAF58262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAF58262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Umek RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  φ
 1010
                                                                                                                                                                                                                                                                                                                                                                                                1370
                                                                  1070
                                                                                                                                                                                                                               545
                                  365
                                                                                                                                                                485
                                                                                                                                                                                                                                                                                                  605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAF58262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                q
                                                                                                 q
                                                                                                                                                                g
                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                  δŏ
                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                δ
                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gatccatagttgcttccaagattcactggccgacaccccgttacctcaaatttgccataa 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) mon single-nucleotide polymorphisms, e.g. for genotyping, monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            650 titteittaicacaaageaagittetaceactaicacateaaaaaggaatggaatte 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           710 gogaaaaggoggaaaccgacagaccgtctccatccattttggaccacattcacaaact 769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          770 gttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaatcttccctg 829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattatgtctgaaa 889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgattg 949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                               Electron-transfer group; ETM; mismatch; genotyping; gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 936 BP; 6 A; 138 C; 8 G; 8 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative 431, Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 6; Page 128; 159pp; English
                                                                                                                                                                                                                                                                                                                                                                               (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ...
                  BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.18;
                 AAF58259 standard; DNA; 936
                                                                                                                                                                                                                                                                                                26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                               99US-0145695
2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.98;
                                                                                 (first entry)
                                                                                                               Oligonucleotide D2004
                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 single surface.
                                                                                                                                                                                                                               WO200107665-A2
                                                                                                                                                                                                                                                                                                                               26-JUL-1999;
17-MAR-2000;
                                                                                24-APR-2001
                                                                                                                                                                                                                                                                01-FEB-2001
                                                                                                                                                                                               Synthetic.
                                               AAF58259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                               Umek RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
AAF58259
```

qq ò

δ

ó g

g

q

ŏ

g

ò

g

ò

(CLIN-) CLINICAL MICRO SENSORS INC

WPI; 2001-159728/16

Umek RM;

26-JUL-1999; 99US-0145695. 17-MAR-2000; 2000US-0190259.

2000WO-US20476

26-JUL-2000; 01-FEB-2001

WO200107665-A2

```
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                       1190 actactcaagatttgccgctcagctttccgtttgcactcttatggttggccttctcaccg 1249
                                                                                                                                                                                                                                                                                                           tettgegtgetetttteatteeattettettettetgeaactategtgteeagaegegtg 1069
                                                                                                                                                                                                                                                                                                                                                    1070 cttatcctgttttctttgagtctactgacatttttgtgattggtgaattgccatgtctt 1129
                                                                                                                                                                                                                                                                                                                                                                                              1130 tttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctc 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1250 gtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatcttataaatat 1309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaatggaaattc 709
                                                                                                            710 gcgaaaaggcggaaaccgacagaccgtctccatccattcttggaccacattcacaaact
                                                                                                                                 gttatgggcaactetteaatgtttggttetgetttgeegttaeteteacaatetteeetg
                                                                                                                                                                            ttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattatgtctgaaa
                                                                                                                                                                                                                     acgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgattg
                                                                                                                                                                                                                                          gatccatagttgcttccaagattcactggccgacaccccgttacctcaaatttgccataa
                                                                                                                                                                                                                                                                                    ;
  Length 936;
Score 85; DB 22; L
Pred. No. 8e-13;
31; Mismatches 301;
                     Conservative 431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tattaaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             725 WWWWWWWWWWWWWWWW 743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAF58255 standard; DNA; 938
          0.98;
           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAF58255;
 Query Match
             Local
                                                                                                                                                                                                                                                                                                        1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1310
                                                               'n
                                                                                                           65
                                                                                                                                 770
                                                                                                                                                     125
                                                                                                                                                                          830
                                                                                                                                                                                               185
                                                                                                                                                                                                                    890
                                                                                                                                                                                                                                          245
                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAF58255
                                                                                     ò
                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                           8
                                                                                                                               δ
                                                                                                                                                   g
                                                                                                                                                                          ò
                                                                                                                                                                                             Db
                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                        οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
```

Electron-transfer group; ETM; mismatch; genotyping;

gene expression; ss

Synthetic.

Oligonucleotide D1876.

```
Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 950 gatecatagttgettecaagatteaetggeegaeaeeeegttaeeteaaatttgeeataa 1009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1010 tettgegtgetetttteatteeattettettettettetgeaactategtgteeagaegegtg 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1070 cttatcctgttttctttgagtctactgacatttttgtgattggtggaattgccatgtctt 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         tttcacatggatacetcagegetetggcaatgggatacaetecaaaegtegtgeeatete 1189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1190 actactcaagatttgccgctcagctttccgtttgcactcttatggttggccttctcaccg 1249
                                                                                                                                                                                                                                                                                                                                                                                                         The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             650 ttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaatggaattc 709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              710 gcgaaaaggcggaaaccgacagaccgtctccatccattctttggaccacattcacaaact
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      830 ttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattatgtctgaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           890 acgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgattg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         485 wwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwww
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         770 gttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaatcttccctg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 938;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 6.1%; Score 85; DB 22; Length 93
Best Local Similarity 0.9%; Pred. No. 8e-13;
Matches 7; Conservative 431; Mismatches 301; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and single-nucleotide polymorphisms, e.g. for genotyping, monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 938 BP; 4 A; 144 C; 9 G; 5 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                       Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                                                                                    a single surface
δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
```

ö

```
AAF58254/c
ID AAF58254 standard; DNA; 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Oligonucleotide D1875.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAF58254;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Umek RM;
                                                                                                                                                                                                                                                               Op
                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QQ
                                                                                                  ŏ
                                                                                                                          g
                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on a single surface
                                 gtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatcttataaatat 1309
                                                                           The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     642 aattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaat 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            702 ggaaattegegaaaaggeggaaacegacagacegtetecatecattetttggaceacatt 761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 n 6.0%; Score 83; DB 22; Length 936;
Similarity 0.7%; Pred. No. 2.7e-12;
5; Conservative 436; Mismatches 306; Indels
                                                                                                                                                                                                                                                                                                Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 936 BP; 4 A; 139 C; 10 G; 7 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                RESULT 8
AAF58252/c
ID AAF58252 standard; DNA; 936 BP.
                                                                                                                         1370 tattaaaaaaaaaaaaaa 1388
                                                                                                                                             725 WWWWWWWWWWWWWW 743
                                                                                                                                                                                                                                                                                                                                                                                                    26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                           26-JUL-1999; 99US-0145695
17-MAR-2000; 2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            monitoring gene expression.
                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                          Oligonucleotide D1835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-159728/16.
                                                                                                                                                                                                                                                                                                            gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 5; Conserv
                                                                                                                                                                                                                                                                                                                                                        WO200107665-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                          26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                              01-FEB-2001.
                                                                                                                                                                                                                                                   24-APR-2001
                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                            AAF58252;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Umek RM;
                                                                                                 g
                                                                                                                       ò
                                                                                                                                              q
                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QQ
                                                    qq
```

```
1062 gacgcgtgcttatcctgttttctttgagtctactgacatttttgtgattggtggaattgc 1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1122 catgicititicacatggataccicagcgciciggcaatgggatacaciccaaacgicgi 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1182 gocatotoactactoaagatttgoogotoagotttoogtttgoactottatggttggoot 1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1242 tctcaccggtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatctt 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1302 ataaatatttatageettagagtatacttgttatatgttgttttttttattaagctgtggaat 1361
                                                                                                                                                                                                                                                                                                                                       942 tgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaatt 1001
                                                                                                                                                                                                                                                                                 762 cacaaactgitaigggcaactcitcaaigtitggiicigciitgccgiiactcicacaai 821
                                                                                                                                                                  882 gtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgc
                                                                                                                                                                                                                                                                                                                                                                                                822 cttccctgttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattat
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1002 tgccataatcttgcgtgctcttttcattccattcttcttcttcttctgcaactatcgtgtcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1362 aaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CLIN-) CLINICAL MICRO SENSORS INC.
```

```
a
                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                              ;
                                         useful as labels in
og repeat analyses on
                                                                                                                              The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping, monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaatt 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tgecataatettgegtgetetttteattecattettettettettetgeaaetategtgteea 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         teteaccggtggcetgtggcccgttgttattgagcacttcgtggacaagccaagtatett 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                642 aattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaat 701
                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                   ggaaattegegaaaaggeggaaacegaeagaeegteteeateeattettggaeeaatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cttccctgttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattat
                                                                                                                                                                                                                                                                                                                                                                                                                                                             cacaaactgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          МЖИМИМИМИМИМИМИМИМИТ AAGCИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gacgcgtgcttatcctgttttctttgagtctactgacatttttgtgattggtggaattgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      catgtctttttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gocatctcactactcaagatttgccgctcagctttccgtttgcactcttatggttggcct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                             Score 83; DB 22; Length 936;
Pred. No. 2.7e-12;
6; Mismatches 306; Indels
                                         Nucleic acids containing electron-transfer group, us hybridization assays, e.g. for genotyping, allowing
                                                                                                                                                                                                                                    Sequence 936 BP; 4 A; 144 C; 7 G; 5 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aaaataattattaaaaaaaaaaaaa 1388
                                                                                                    Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                                                               Query Match 6.0%; Scc
Best Local Similarity 0.7%; Prec
Matches 5; Conservative 436;
             WPI; 2001-159728/16
                                                                        single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                            762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     177
```

qq

ò g ò g

QQ

ò g qq ò g οy Ω ò

ò

ò

g

δy

ò pp à

δ

```
Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  642 aattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaat 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cacaaactgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            822 cttccctgttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.0%; Score 83; DB 22; Length 936; 0.7%; Pred. No. 2.7e-12; ve 436; Mismatches 306; Indels
                                                                                                                                                                                                        group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 936 BP; 5 Å; 142 C; 7 G; 6 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Example 6; Page 127; 159pp; English.
                       BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CLIN-) CLINICAL MICRO SENSORS
                       936
                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0145695
                                                                                                                                                                                                                                                                                                                                                                                                                 26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.7%;
                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                   AAF58257 standard; DNA;
                                                                                                                                                             Oligonucleotide D1954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
les 5; Conserv
                                                                                                                                                                                                          Electron-transfer
                                                                                                                                                                                                                              gene expression;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  single surface
                                                                                                                                                                                                                                                                                                                        WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-MAR-2000;
                                                                                                                24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                   01-FEB-2001
                                                                                                                                                                                                                                                                           Synthetic.
                                                                  AAF58257;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unek RM;
AAF58257/c
ID AAF582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

ö

821

ò

ó;

P δ g ò qq Ω g ò q å g ò g δŽ g

```
Oligonucleotide D2007
                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAF58262;
                                                                                                               Matches
                                                                                                                                                                                                                                                                                                           822
                                                                                                                                                                                                                                                                                                                                                                   882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1182
                                                                                                                                                                                                                                                       762
                                                                                                                                                                                                                                                                                                                                                                                                                         942
                                                                                                                                                                                                                                                                                                                                                                                                                                                   477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      XEXEX
    SSXS
                                                                                                                                          δ
                                                                                                                                                                     Op
                                                                                                                                                                                                 ò
                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                       Οy
                                                                                                                                                                                                                                                                                 СP
                                                                                                                                                                                                                                                                                                           ó
                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                       1061
                                                                                                                                                                                                                                                                                 1301
                                                                                                                                                                     catgicititicacaiggalaccicagegetetggcaalgggalacactecaaaegtegi 1181
                                                                                                                                                                                                                         gecateteactacteaagatttgeegeteagettteegtttgeactettatggttggeet 1241
tgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaatt 1001
                                                                                                               gacgcgtgcttatcctgttttcttttgagtctactgacatttttgtgattggtggaattgc 1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches)
                                                                                                                                                                                                                                                                                                           tgccataatcttgcgtgctcttttcattccattcttcttcttcttctgcaactatcgtgtcca
                                                                                 totcaccggtggcctgttgttattgagcacttcgtggacaagccaagtatctt
                                                                                                                                                                                                                                                                                                                                       ataaatatttatagcattagagtatacttgttatatgttgtttttattaagctgtggaat
                                                                                                                                                                                              Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                             aaaataattattaaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 6; Page 128; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                       МИМИМИМИМИМИМИМИМИМИМИМ 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF58259 standard; DNA; 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26-JUL-2000; 2000WO-US20476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0145695
2000US-0190259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Oligonucleotide D2004.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene expression; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-159728/16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       hybridization ass
a single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26-JUL-1999;
17-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAF58259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Umek RM;
                                                                                                                                                                                                                         1182
                                                       1002
                                                                                                             1062
                                                                                                                                                                                                                                                                                                                                      1302
                                                                                                                                                                                                                                                                                                                                                                                            1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAF58259/c
                           477
                                                                                                                                                                                                                                                     237
                                                                                                                                                                                                                                                                                                          177
                                                                                                                                                                                                                                                                                                                                                                                                                       57
```

```
tgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaatt 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tgccataatcttgcgtgctcttttcattccattcttcttcttcttctgcaactatcgtgtcca 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         catgicititicacatggataccicagcgcicitggcaatgggatacaciccaaacgicgi 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gecateteacteateagatttgeegeteagettteegtttgeactettatggttggeet 1241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1242 totcaccggtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatctt 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1302 ataaatatttatagcattagagtatacttgttatatgttgttttttattaagctgtggaat 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              358
                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                             642 aattgcacttttcttttatcacaaagcaagatttctaccactatcaccatcaaaaaggaat 701
                                                                                                                                                                                                                                                                                           821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ИМЖИИМИМИМИМИМИМИМИТ AAGCИИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИМИ
                                                                                                                                                                                                                                                                                                                                                                                                                                        cacaaactgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cttccctgttatgatgaccgttaccactcgtggagattccggcttcctaaaccaaaattat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gacgcgtgcttatcctttttgagtctactgacatttttgtgattggtggaattgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                Length 936;
  for genotyping,
                                                                                                                                                                                             Indels
                                                                                                                                           6.0%; Score 83; DB 22; Lk Similarity 0.7%; Pred. No. 2.7e-12; 5; Conservative 436; Mismatches 306;
                                                                      Sequence 936 BP; 6 A; 138 C; 8 G; 8 T; 776 other
and single-nucleotide polymorphisms, e.g. monitoring gene expression.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1362 aaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ММММИМИМИМИМИМИМИМИМИМИМ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAF58262/c
ID AAF58262 standard; DNA; 936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
```

```
1242 totcaccggtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatctt 1301
                                                                                                                                                 The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
 642 aattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaat 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  group, useful as labels i
allowing repeat analyses
                                                                   gecateteactacteaagatttgeegeteagettteegtttgeaetettatggttggeet
                                                                                                                                                                    Length 938;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.0%; Score 83; DB 22; Length 93 llarity 0.7%; Pred. No. 2.7e-12; Conservative 436; Mismatches 306; Indels
                                                                                                                                                                                                                                                                                                                                                                                                            Electron-transfer group; ETM; mismatch; genotyping; gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 938 BP; 4 A; 144 C; 9 G; 5 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acids containing electron-transfer hybridization assays, e.g. for genotyping, a single surface
                                                                                                                                                                                                       aaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Example 6; Page 127; 159pp; English.
                                                                                                                                                                                                                                  ИМИМИМИМИМИМИМИМИМИМИМИМИМ 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                     BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                   AAF58255 standard; DNA; 938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       monitoring gene expression
                                                                                                                                                                                                                                                                                                                                                                                  Oligonucleotide D1876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200107665-A2.
                                                                                                                                                                                                                                                                                                                                                        24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic.
                                                                                                                                                                                                                                                                                                                              AAF58255;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Umek RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local
              297
                                         1182
                                                                                                                                                                                                       1362
                                                                                                                        177
                                                                                                                                                                            117
                                                                                                                                                                                                                                  22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                      AAF58255,
                                         à
                                                                  a
                                                                                             δ
                                                                                                                      Pp
                                                                                                                                                   ò
                                                                                                                                                                           g
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ;
0
                                                                                                                                                                                                                                                                       Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaatt 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1122 catgtctttttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgt 1181
                                                                                                                                                                                                                                                                                                                                                         two nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ggaaattogogaaaaggoggaaacogacagacegtotocatocattotttggaccacatt 761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aattgcacttttctttatcacaaagcaagatttctaccactatcaccatcaaaaaggaat 701
                                                                                                                                                                                                                                                                                                                                                   The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cacaaactgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cttccctgttatgatgaccgttaccactcgtggagattccgggcttcctaaaccaaattat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtcttcaatttgttcgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tgccataatcttgcgttgctcttttcattccattcttcttcttcttctgcaactatcgtgtcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gacgcgtgcttatcctgttttctttgagtctactgacatttttgtgattggtggaattgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 936;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      306; Indels
Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 936 BP; 5 A; 139 C; 10 G; 6 T; 776 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; DB 22;
2.7e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.0%; Score 83; DB 2
0.7%; Pred. No. 2.7e-1
ative 436; Mismatches
                                                                                                                                                                                                                                                                                                                             Example 6; Page 128; 159pp; English
                                                                                                                                                                                        (CLIN-) CLINICAL MICRO SENSORS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative 436;
                                                                                                                      26-JUL-2000; 2000WO-US20476.
                                                                                                                                                 26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                          monitoring gene expression
              gene expression; ss.
                                                                                                                                                                                                                                             WPI; 2001-159728/16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                                                                                                                                                                                                                  a single surface
                                                               WO200107665-A2
                                                                                            01-FEB-2001
                                       Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                  Umek RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , oy
 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

ö

Gaps

ö

in on

```
(CLIN-) CLINICAL MICRO SENSORS INC
                                                                                                                                                                                                                                                                                                                                                                                                                      gene expression; ss
                                                                       single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26-JUL-1999;
17-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                             24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic.
                                                                                                                                                                                                                                                                                                                                                            AAF58238;
                       Umek RM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Umek RM;
                                                                                                                                                                                                                                                                                                                              15
                                                                                                                                                                                                                                                                                                                                   AAF58238
                                                                                                                                                                                                                                                                                    δλ
qq
                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                             XX
                                                                                                                                                                                                                                                                                                                                                                                                     tgcgattggatccatagttgcttccaagattcactggccgacaccccgttacctcaaatt 1001
                                                                                                                                                                     tgccataatcttgcgtgctcttttcattccattcttcttcttctgcaactatcgtgtcca 1061
                                                                                                                                                                                                    1062 gacgcgtgcttatcctgttttctttgagtctactgacatttttgtgattggtggaattgc 1121
                                                                                                                                                                                                                                    catgictititicacatggataccicagcgcicitggcaatgggatacactccaaacgicgi 1181
                                                                                                                                                                                                                                                                    gecateteactacteaagatttgecgeteagettteegtttgeactettatggttggeet 1241
                                                                                                                                                                                                                                                                                                    tctcaccggtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatctt 1301
                                                                                                                                                                                                                                                                                                                                     ataaatatttatagcattagagtatacttgttatatgttgtttttattaagctgtggaat 1361
                                                                                                                                                                                                                   имитимитимитимитимитимитимитимитимитититититититититити 118
      761
                                                                                                                                                                                                                                                                                                                                                    28
                                                cttccctgttatgatgaccgttaccactcgtggagattccggcttcctaaacaaaattat
                                                                                                     882 gtctgaaaacgatgaaatctaccatttgctcacaagtttcctcgtcttcaatttgttcgc
                                      cacaaactgttatgggcaactcttcaatgtttggttctgctttgccgttactctcacaat
                                                                                                                                                                                    Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                   1362 aaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                    имимимимимимимимимимими 31
                                                                                                                                                                                                                                                                                                                                                                                                                           AAF58238 standard; DNA; 244 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oligonucleotide D1250:D1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26-JUL-2000; 2000WO-US20476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26-JUL-1999; 99US-0145695.
17-MAR-2000; 2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene expression; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200107665-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                          24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF58238;
                                                                                                                                                                    1002
                                                                                                                                                                                                                                                                                    237
                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
AAF58238/c
                                                                                                                                     942
                                                                                                                                                     477
                                                                                                                                                                                                                                    1122
                                                                                                                                                                                                                                                                    1182
                                                                                                                                                                                                                                                                                                    1242
                                                                                                                                                                                                                                                                                                                                    1302
                                                                     822
                                                                                                                                                                                    417
                                                                                                                                                                                                                                                                                                                                                   117
                                                                                                                                                                                                                                                                                                                                                                                   57
                                     762
                                                    g
                                                                                                                    qa
                                                                                                                                                                   δy
                                                                                                                                                                                    g
                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                  фq
                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                   οy
                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                    qq
                                                                     δ
                                                                                    q
                                                                                                    ŏ
                                                                                                                                     ò
                                                                                                                                                   g
                                                                                                                                                                                                    ŏ
                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                   q
                                     ò
```

```
Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on a single surface
                                                           Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1239 ccttctcaccggtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtat 1298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1299 cttataaaatatttatagcattagagtatacttgttatatgttgttttttattaagctgtgg 1358
                                                                                                                                                                                                                                   The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Electron-transfer group; ETM; mismatch; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 244 BP; 19 A; 9 C; 12 G; 10 T; 194 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; Score 43.2; DB
Pred. No. 0.057;
95; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1359 aataaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
                                                                                                                                                                                 Example 4; Page 120; 159pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (CLIN-) CLINICAL MICRO SENSORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAF58238 standard; DNA; 244 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 3.1%;
Best Local Similarity 8.0%;
Matches 12; Conservative 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-2000; 2000WO-US20476.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99US-0145695.
2000US-0190259.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oligonucleotide D1250:D1102
                                                                                                                                                                                                                                                                                                                                                                                              monitoring gene expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
WPI; 2001-159728/16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2001-159728/16.
```

```
The present invention relates to a composition comprising two nucleic acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping, monitoring gene expression.
                       Example 4; Page 120; 159pp; English.
× 2 × 0 0 0 0 0 0 0 × 8
```

Sequence 244 BP; 19 A; 9 C; 12 G; 10 T; 194 other;

.; 0 1265 ttgttattgagcacttcgtggacaagccaagtatcttataaaatatttatagcattagagt 1324 0; Gaps Length 244; Indels Query Match 3.1%; Score 42.4; DB 22; Best Local Similarity 0.8%; Pred. No. 0.093; Matches 1; Conservative 96; Mismatches 27; QQ ò q οy

137 www 140

1385 aaaa 1388

Οy

Search completed: February 28, 2002, 00:52:31 Job time: 3152 sec

٤.

Drosophi

Perfect score:

Title:

Sequence:

OM nucleic

ou:

Run

Scoring table:

Searched:

Database

```
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.

1 (basea 1 to 533)

1 (basea 1, ', Shin-1,T', Thierry-Mieg,J', Thierry-Mieg,D', Suzuki,Y'.

and Sugano,S.
                                                                             A1239052 GH15222.5
R03450 pk06g03.r1
C43316 C43216 Vuji
BB181657 BB181657
AU111089 AU111089
AU111161 AU111161
AQ842781 CpG1299A
AQ264288 CpG0751B
C44886 C44886 Yuji
AU111560 AU111560
                             LD27618.5
clone XBA
                                                           MBAFCF3B0
SWAMCAC40
                                                                                                                                                                                                         ra42d09.y
ra41d09.y
mj58g09.x
                                                                                                                                                                                                                                                   mj58909.y
mj58909.r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:6239"
/clone="yk1015b04"
/clone_llb="unpublished oligo-capped cDNA library, stage
L1"
                                                                                                                                                                                                                                                                                                                                                                                                                     AU222343 533 bp mRNA EST 17-JUL-2001 AU222343 unpublished oligo-capped cDNA library, stage L1 Caenorhabditis elegans cDNA clone ykl015b04 3', mRNA sequence.
AA406898 N
AW409482 S
AU109592 A
AA948920 I
AA948920 I
AL634622 I
AA842090 N
AI784877 S
                                                                                                                                                                                                                               A1431074 BF459052 A1595433 AA058117 AW333515 AW048063 AL101356
                                                                                                                                                                                                                   AW829541
                                                                                                                                                                                                                                                                                                       AK005136
                                                                                                                                                                                                                                                                                                                  BF460904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A complementary view of the C.elegans genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Caenorhabditis elegans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Yata 1111, Mishima, Shizuoka 411, Japan
Tel: 81-559-81-6854
Fax: 81-559-81-6855
                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
                                                                                                                                                      AQ254298
C44886
AU111560
                                                                                                                                                                                                                                                                       AW333515
AW048063
CNS012BM
                             AA948920
CNS0760F
CNS0010J
                                                            AA842090
AI784877
                                                                                                   C43216
BB181657
AU111089
AU111161
                                                                                                                                                                                     AU111734
AQ254261
                                                                                                                                                                                                          AW829621
AW829541
                                                                                                                                                                                                                               AI431074
BF459052
                                                                                                                                                                                                                                                                                                                            BB169820
BB182391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2001)
Contact: Yull Kohara
Genome Biology Lab.
National Institute of Genetics
                                                                                AI239052
                                                                                                                                                                                                                                                                                                        AK005136
                                                                                                                                                                                                                                                                                                                   BF460904
                                                                                                                                              AQ842781
                                                                                                                                                                                                                                                              AA058117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: ykohara@lab.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AU222343.1 GI:14860500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Caenorhabditis elegans.
Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="N2"
  RESULT 1
AU222343/c
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
  (without alignments)
12305.409 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AW453425 SWOV3MCAM
AU109268 AN109268
AU08292 SWAMCAC12
AU209436 AU209436
C13829 C13829 Yuji
AU113471 AU113471
AU115402 AU115402
AU14995 AU114995
AL060767 Drosophil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AU222343 AU222343
AU201199 AU201199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AU216992 AU216992
AW453425 SWOV3MCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                      Search time 1212.08 Seconds
                                                                                                                                    .....ttattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Description
                                                                                                                                                                                                           22703874
          GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                     11351937 seqs, 5372889281 residues
                                                                                                                                                                                                          Potal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                      February 27, 2002, 23:21:59
                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Assing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AI082929
AU209436
C13829
                                                 - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AU216992
AW453425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AU222343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AU109268
                                                                                                                                    accelate...
                                                                                                                                                        IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_gss_vrt:*
em_gss_other:*
                                                                                                             (F-36
                                                                                                                                                                                                                                                                                                                                                                                                          gb_est1:*
gb_est2:*
gb_htc:*
gb_gss:*
em_gss_fun:*
                                                                                                                                                                                                                              Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           em_gss_inv:*
em_gss_pln:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  em_gss_hum:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                em_gss_pro:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_gss_rod:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1: em_estfun:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
                                                                                                                                                                                                                                                                                                                             en esthum: *
                                                                                                                                                                                                                                                                                                                                     em_estin:*
em_estom:*
em_estpl:*
em_estba:*
em_estro:*
                                                                                                                                   1 atggtaataat
                                                                                                            US-08-816-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                     em_htc:*
                                                                                                                                                                                                                                                                                                       EST:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
Match I
```

/sex="Hermaphrodite" /tissue_type="whole animal" /dev_stage="L1"

AU113471 AU115402 AU114995 CNS005TE

360 300 300 997

86.6 77.6 75.6 75.2 73.8 70.8 70.2 67.8 57.6 56.2

4 5 7 7 10 11 12

000

Score

Š

O

Result

S22G3 AGS

UI-M-BH1

UI-M-BZ1

Mus musco

Drosophil UI-M-CGOP BB169820 BB182391 ~

ö

Gaps

. 0

Query Match

q

ò

δ

1048

pp à g

ò

g ò g

g

ò

BASE COUNT

ORIGIN

```
Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Bukaryota: Metazoa: Nematoda; Chromadorea; Rhabditidae; Rhabditidae; Peloderinae; Caenorhabditis.
1 (bases I to 710)
Kohatra Y., Shin-i,T., Thierry-Mieg,J., Thierry-Mieg,D., Suzuki,Y. and Sugano,S.
                           /clone_lib="unpublished oligo-capped cDNA library, stage L4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="unpublished oligo-capped cDNA library, stage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       949 ggatccatagttgcttccaagattcactggccgacaccccgttacctcaaatttgccata 1008
                                                                                                                                                                                                                                                                                                                                                                                        7 ataatcaaccgatcgaacacctatgccgttgagcaggaagcatttccaagagacaagtac 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AU216992 710 bp mRNA EST 17-JUL-2001 AU216992 unpublished oligo-capped cDNA library, stage L4 Caenorhabditis elegans cDNA clone yk844e08 3'', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.4%; Score 75.6; DB 10; Length 710; illarity 51.6%; Pred. No. 1.2e-05; Conservative 0; Mismatches 184; Indels 3
                                                                                                                                                                                                                              Length 332;
                                                                                                                                             others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          others
                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A complementary view of the C.elegans genome Unpublished (2001)
Contact: Yuji Kohara
                                                                                                                                                                                                                          6; DB 10;
6e-06;
ches 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Caenorhabditis elegans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genome Biology Lab.
National Institute of Genetics
Yata 111, Mishima, Shizuoka 411, Japan
Tel: 81-559-81-6854
Fax: 81-559-81-6855
                                                                                                /tissue_type="whole animal"
/dev_stage="L4"
59 c 81 q 91 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          172 t
                                                                                                                                                                                                                          Score 77.6; D
Pred. No. 6e-0
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /sex="Hermaphrodite"
/tissue_type="whole animal"
/dev_stage="L4"
103 c 181 q 172 t
/db_xref="taxon:6239"
/clone="yk789e10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:6239"
/clone="yk844e08"
                                                                             /sex="Hermaphrodite'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: ykohara@lab.nig.ac.jp.
Location/Qualifiers
                                                                                                                                           81 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AU216992
AU216992.1 GI:14855149
                                                                                                                                                                                                                          Query Match 5.6%;
Best Local Similarity 65.3%;
Matches 113; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity
Matches 199; Conserva
                                                                                                                                             100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
DEFINITION
                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 3
AU216992/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            óλ
                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                             δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                       1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Caenorhabditis elegans.
Caenorhabditis elegans
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea
; Rhabditidae; Peloderinae; Caenorhabditis.
1 (bases 1 to 332)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kohara,Y., Shin-i,T., Thierry-Mieg,J., Thierry-Mieg,D., Suzuki,Y. and Sugano,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1107
                                                                                                                                                                                                                                                                                                                                                                                                              988 cgttacctcaaatttgccataatcttgcgtgctcttttcattccattcttcttcttctgc 1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1108 attggtggaattgccatgtcttttcacatggatacctcagcgctctggcaatgggatac 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1168 actocaaacgtogtgocatotoactactcaagatttgocgotoagotttocgtttgoact 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cttatggttggccttctcaccggtggcctgtggcccgttgttattgagcacttcgtggac 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        218
                                                                                                                                                                                                                                                                                                                                                                                                                                   808 gttactctcacaatcttccctgttatgatgaccgttaccactcgtggagattccggcttc 867
                                                                                                                                                                                     868 ctaaacaaaattatgtctgaaaacgatgaaatctacactttgctcacaagtttcctcgtc 927
                                                                                                                                                                                                                                                                                    454 GGAATAACTICIGITITITIGAGATAGITITATICITICCC---GATAACTACTITICCTCAAT 398
                                                                                                                                                                                                                                                                                                                            928 ttcaatttgttcgctgcgattggatccatagttgcttccaagattcactggccgacacc 987
                                                                                                                                                                                                                                                                                                                                                                     397 ITCAATITATITGCATGGATTGGATCATCTTGCCAATTATGTTCAATTCCCATCAGAG 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   217 ATTGGATGTACCATAATGGCATTTACTTGTGGTTATATGAGCAGTTTAGCGCTGATTTAT 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97 CTAATGCTCGGAATTCTCATCGCAGTCGCCAGTACACCCATTGCTGCATGGGCGGTGGAC 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AU201199 332 bp mRNA EST 17-JUL-2001
AU201199 unpublished oligo-capped cDNA library, stage L4
Caenorhabditis elegans cDNA clone yk789e10 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aactatcgtgtccagacgcgtgcttatcctgttttctttgagtctactgacatttttgtg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       э,
,
                                                                               Length 533;
                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A complementary view of the C.elegans genome Unpublished (2001)
Contact: Yuji Kohara

    .332
    /organism-"Caenorhabditis elegans"
/strain-"N2"

                                                                             6.2%; Score 86.6; DB 10;
ilarity 49.3%; Pred. No. 7.9e-08;
Conservative 0; Mismatches 259;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aagccaagtatcttataaatatttatagcattagagt 1324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genome Biology Lab.
National Institute of Genetics
Yata Ill1, Mishima, Shizuoka 411, Japan
Tel: 81-559-81-6854
Fax: 81-559-81-6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: ykohara@lab.nig.ac.jp.
Location/Qualifiers
    9
  100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AU201199
AU201199.1 GI:14829871
  O
101
                                                                                                  Best Local Similarity
Matches 255; Conserv
  ø
191
```

1228

ò

g

1288

ò

g

LOCUS

AU201199

RESULT

ACCESSION VERSION KEYWORDS SOURCE

ORGANISM

TITLE JOURNAL COMMENT

REFERENCE AUTHORS

;

Gaps

ë.

١٣

source

FEATURES

qq ò g ò Q ò g ő q ò pp ò qq

```
168
                                                                                                                                                                                                                                             305;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST
                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                           Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
DEFINITION
                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                         88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AU109268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (SLGGMLW-OWEL3)"

(dev_stage="molting L3"

/dev_stage="molting L3"

/dev_stage="molting L3"

/dev_stage="molting L3"

/dev_stage="molting L3"

/note="Vector: Lambda Uni-ZAP XR; Site_1: Eco RI; Site_2:
Xho I; Filarial nematode parasite of humans. Third-stage
larvae, L3, were isolated from infected black files in
Cameroon (forest strain). The L3 were cultured in 20% FCS
in IMDM+ NTC 135 and collected after day 1, 2, or 3 in
culture. L3 of 0. volvulus molt to fourth-stage larvae by
day 5 in culture. mRNA was isolated from approximately
day 5 in culture. mRNA was isolated from approximately
6000 molting larvae (mL3), 2000 larvae from day 1, 2 or 3
in culture, and converted to double-stranded cDNA using
reverse transcriptase and oligo(dT) followed by RNASE H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Nematoda; Chromadorea; Spirurida; Filarioidea;
                                   1189 cactactcaagatttgccgctcagctttccgtttgcactcttatggttggccttctcacc 1248
                                                                                                                                                                                                                                                                                                                                      ggtggcctgtggcccgttgttattgagcacttcgtggacaagccaagtatcttataaata 1308
                                                                                                         gcttatcctgttttctttgagtctactgacatttttgtgattggtggaattgccatgtct 1128
                                                                                                                                                 530
                                                                                                                                                                                                                         470
                                                                                                                                                                                                                                                                                                 410
                                                                                                                                                                                                                                                                                                                                                            it of Biological Sciences, Clark Science Center, Smith
Northampton, MA, 01063, USA
709 GGATCAATCGTCGCCGGGAGAAAGCAATGGCCCGCCCCGAACAAGCTCTGGATCCCAGTC 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               L3 larva cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SWOY3MCAM41C065K Onchocerca volvulus molting L3 larva cDNA (SL96MLW-OvmL3) Onchocerca volvulus cDNA clone SWOY3MCAM41C06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Laney, S. and Lustigman, S. of Onchocerca volvulus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-FEB-2000
                                                                                                                            529 TTCGGAAGTGGATACATCTCAGGACTCTCCATGATGTACACTTCAAAGACTGTCGATCCA
                                                                                                                                                                                      ttttcacatggatacctcagcgctctggcaatgggatacactccaaacgtcgtgccatct
                                                                                                                                                                                                                                                                                               TCAAAGGCTCAGGTGGCTGGAATGATGGCTGGATTTTTCCTCATTTCAGGAATCGTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 648)
Williams, S.A., Lizotte-Wanlewski, M., Laney, S. and I Genes expressed in molting L3 larvae of Onchocerca Genes expressed in molting L3 larvae of Onchocerca Unpublished (1997)
Contact: Steven A. Williams
Wolecular Parasitology
Smith College Department of Biological Sciences
Department of Biological Sciences
College, Northampton, MA, 01063, USA
Fax: 413853826
Fax: 413855386
Email: genome@smith.edu
Seg primer: pBluescript SK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Onchocerca volvulus"
/strain="Kumba, Cameroons"
/db_xref="taxon:6282"
/clone="Sw0v3McAm1c06"
/clone_lib="Onchocerca volvulus molting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST
                                                                                                                                                                                                                                                                                                                                                                                                              tttatagcattagagtatacttgtta 1334
                                                                                                                                                                                                                                                                                                                                                                                                                                352 CTTCTAACATTAAAGACACCTCATTA 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Onchocercidae; Onchocerca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AW453425.1 GI:6994211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               648 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Onchocerca volvulus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Onchocerca volvulus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AW453425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                 469
                                                                                                                                                                                                                                                                                                                                    1249
                                                                                                                                                                                                                                                                                                                                                                         409
                                                                                                                                                                                  1129
                                                                                                                                                                                                                                                                                                                                                                                                            1309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AW453425
```

LOCUS

FEATURES

COMMENT

```
3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
1 (bases 1 to 327)
and DNA pol I. The library was constructed in the lambda Uni-Zap XR vector and has 1 x 10E6 independent recombinants and the average insert size is -1200 bp. The library was constructed by Sara Lustigman and Michelle Lizotte-Wanlewski in the Laboratory of Dr. S. A. Williams. The library is available from Dr. Sara Lustigman (email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCGCTTCATTTTTGTCATATCTTGGTCTTGCTTCACAGATACCGAATTTGCTACTCAA .267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       268 TCTGATCAACTTATTCGTCCAGATCAAAGGCGATCTCAGACGACGAATTAGCTTTTCGCT 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACCAATGCATTGATACTGGGCAACATATGCGGGACATTTGTGTCCCGTCGTAAATA 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REST 19-OCT-2000 could unpublished oligo-capped cDNA library Caenorhabditis elegans cDNA clone yk708a4 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                  30 tgccgttgagcaggaagcatttccaagagacaagtacaatattgtctactggctcgtcat 89
                                                                                                                                                                                                                                                                                                                                                                                                                              87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCTCATATGATGGTGTATTTTTTTTTTTACCATGACCACAGTGGTGTTATTAAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90 tcttgttggattcggagttcttctgccatggaatatgttcattactatcgccctgagta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150 ttatgtgaattattggttc---aaaccggatggcgtggagacatgg-----ta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTTGTTTTGGCGGTTATCACTCTAATAACTCTCATATTCACTCTTATTAAT - - - - - AC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cattggcgctctcttgattggaaacaacatttgcggattgctgataacggttgtgaaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  148 CTACGTGAACTATAAATTCGTGGAAATGAATGCTGGTACGGTGCATAAAAGTGATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ttgcttcaacatcgtcaacctgacaatcattctcatcctcgtcattgttctggagcccac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cggagtgacctattttctgaatgatgatgagcctaaacttgttgcaatcgtctatttcggcat
                                                                                                                                                                                                                                                                                                                                                                                                                 ttcgaaagaattcatgggatcttgacgattggctcacaacttccaaacgcaagcattaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tgttttcaacctgttcctcattattgctggtccctgatctaccgcgttttgctccggt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        435 tagcaatgggctatatgaaaactcggtttatggagttggtggcgattttccgcacccta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCATAACACTTTGTTGGTGCAAAAAAATATATGGATGGGCGGCTTTCTTCTATTTTTGAT
                                                                                                                                                                                                                                                                               Length 648;
                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                   0; Mismatches 298;
                                                                                                                                                                                                                                                                                  DB 10;
                                                                                                                                                                                                                                                                               Score 75.2; DB 10
Pred. No. 1.5e-05;
                                                                                                                                                                                  234 t
                                                                                                                                                        slustigm@nýbc.org).'
126 c 120 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         atcgttggtgatccttctggtgtg 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCTTTGGTAACAAGTTTTGCTTG 645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AU109268
AU109268.1 GI:10922835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caenorhabditis elegans. Caenorhabditis elegans
                                                                                                                                                                                                                                                                                  5.4%;
                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                            Similarity
```

```
Best Local
Matches 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                     102
                                                                                                                                                                                                                                                                                                                                                                                                            162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AU209436
                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                             ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AIO82929 642 bp mRNA EST 13-AUG-1998
SWAMCAC12G09SK Brugia malayi adult male CDNA (SAW94NL-BmAM) Brugia
malayi cDNA clone SWAMCAC12G09 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Brugia malayi.
Brugia malayi
Eukaryota; Metazoa; Nematoda; Chromadorea; Spirurida; Filarioidea;
Orohocercidae; Brugia.
1 (bases 1 to 642)
Williams,S.A.
 Shin-i, T., Thierry-Mieg, J., Thierry-Mieg, D., Suzuki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genes expressed in adult males of Brugia malayi
Unpublished (1995)
Contact: Steven A. Williams
Molecular Parasitology
Smith College Department of Biological Sciences
Department of Biological Sciences, Clark Science Center, Smith
College, Northampton, MA, 01063, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aatattgtctactggctcgtcattcttgttggattcggagttcttctgccatggaatatg 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              242
                                                                                                                                                                                                                                                                                                                                                                                                                                                     123 ATAGTTGACGGTGCGGATAGCTCCAATGAGCACAATGAGCTGATTCCAGAAGATAAGGGA 182
                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                         7 ataatcaaccgatcgaacacctatgccgttgagcaggaagcatttccaagagacaagtac 66
                                                                                                                                                                                                 /strain="N2"
/db_xref="taxon:6239"
/clone="yk708a4"
/sex="Hermaphrodite"
/tissue_type="whole animal"
/dev_stage="varied"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 327;
                                                                                                                                                                                                                                                                                                                                                                                             Indels
                        A complementary view of the C. elegans genome Unpublished (2000)
Contact: Yuji Kohara
                                                                                                                                                                                          /organism="Caenorhabditis elegans"
                                                                                                                                                                                                                                                                                                                                                                   DB 10;
                                                                                                                                                                                                                                                                                                                                                              Score 73.8; DB 10
Pred. No. 3.6e-05;
0; Mismatches 62.
                                                                    Genome Biology Lab.
National Institute of Genetics
Yata 1111, Mishima, Shizuoka 411, Japan
Tel: 81-559-81-6854
Fax: 81-559-81-6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Brugia malayi"
/strain="TRS Labs"
/db_xref="taxon:6279"
/clone="SWAMCAC12G09"
                                                                                                                                              Email: ykohara@lab.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fax: 4135853786
Email: genome@smith.edu
Seg primer: pBluescript
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AI082929.1 GI:3419555
                                                                                                                                                                                                                                                                                                                                                                 5.3%;
                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 64.2
Matches 111; Conservative
Kohara, Y., Sh.
and Sugano, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AI082929
                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  c
                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 67
 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
AI082929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
```

đ

```
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Bukaryota: Metacoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea
; Rhabditidae; Peloderinae; Caenorhabditis.
1 (bases I to 495)
1 (bases I to 495)
and Sugano, S.
                                                                                                                                                                   isolated from jirds and converted to double stranded cDNA using reverse transcriptase and oligo(dT) followed by RNase H and DNApol 1. The library had 4.6 x 10E6 independent recombinants and average insert size was 800 base pairs. The library was constructed by Noelle Ling. The library is available from Dr. S.A. Williams, email 200 c 1122 g 233 t 3 others
//clone_lib="Brugia malayi adult male cDNA (SAW94NL-BmAM)" /lab_host="XiJ-Blue MRF" /
/note="Vector: lambda Unizap XR; Site_l: EcoR I; Site_2: Xho I; Lymphatic filarial nematode parasite of humans: mRNA was prepared from adult males of Brugia malayi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267 gttcctcattattgctggtcccctgatctaccgcgtctttgctccggtttgcttcaacat 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327 cgtcaacctgacaatcattctcatcctcgtcattgttctggagcccactgaagattccat 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ggaagcatttccaagagacaagtacaatattgtctactggctcgtcattcttgttggatt 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52 GGATAAACCTCCTAAAGACAAATATAATGCTGTCTATTTCATTTTACTACTTCCTCGGAT 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 112 AGGTGTTTTGATGCCATGGAACATGTTCATCACAATTGCTCCCTCTTACTACGTGGATTA 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AU209436 495 bp mRNA EST 17-JUL-2001
AU209436 unpublished oligo-capped cDNA library, stage L1
Caenorhabditis elegans cDNA clone ykl015b04 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cggagttcttctgccatggaatatgttcattactatcgccctgagtattatgtgaatta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       447 atatgaaaactoggtttatggagttggtggcgatttccgcacacctacattggcgctct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ttggttcaaaccggatggcgtgg------agacatggtattcgaaagaatt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     172 TAAATTTGTGGAGGTGAGCCCCGATGGTATGGTGCACAAGAGTGATTATGCACTTCATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        207 catgggatctttgacgattggctcacaacttccaaacgcaagcattaatgttttcaacct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              232 TTTGAGTTATCTTGGTCTTGCTTCGCAAATACCGACTTTGCTACTTAATCTGATCAACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                352 GATTATTATTCTGGTAACGCTGATATTCACCCTTATT-----AACACTTCTCACATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            292 ATTCGTCCAGATCAAAGGTGATCTCAGACGACGAGTAGCTTTTCACTTGTTATTTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       406 TAGTGCATTTTTCTTCATTACTATGACTACAGTGGTATTATTAAATGCNGCTAATGGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               466 TTATCAAAGTTCACTTTATGGTTTAACTGCCAACTTTCCGCCTCAATATACCAATGCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  507 cttgattggaaacaacatttgcggattgctgataacggttgtgaaaatcgga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      526 GATACTGGGCAACAACATATGCGGTACATTTGTATCTGTCGTAAATATTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A complementary view of the C.elegans genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.3%; Score 73.8; DB 10;
ilarity 49.4%; Pred. No. 3e-05;
Conservative 0; Mismatches 248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AU209436.1 GI:14845001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                      1.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
```

FEATURES

COMMENT

```
Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Bukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea
; Rhabditidae; Peloderinae; Caenorhabditis.
1 (bases 1 to 300)
1 (bases 1 to 300)
and Sugano, S.
and Sugano, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             coattettettettetgeaactategtgteeagaegegtgettateetgttttetttgag 1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1090 tctactgacatttttgtgattggtggaattgccatgtctttttcacatggatacctcagc 1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      970 attcactggccgacaccccgttacctcaaatttgccataatcttgcgtgctcttttcatt 1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        209 TCCACGTGGTTTTCATCATTGNGGCGCATCGATGAGCTTCGGAAGTGGATACTTCTCA 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    911 tcacaagtttcctcgtcttcaatttgttcgctgcgattggatccatagttgcttcca-ag 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AU113471 300 bp mRNA EST 19-OCT-2000 AU113471 unpublished oligo-capped cDNA library Caenorhabditis elegans cDNA clone yk708a4 3', mRNA sequence.
AU113471. GI:10927038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29 TTANCACATTCCTTCAATTCAACGTGTTTGGCTTCATCGGATCAATCGTCGCGGGAGNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  149 CCATTCTTCATCTTCTGCAACTACCTCCCTGAGACCGGCACACTCCCGGTCTTCTTCGAA
                                                                                                                                                                                                                                                                                                                                                                            others
                                                                                                                                                                                                                                                        /clone="ykk837"
/clone_lib="Yuji Kohara unpublished cDNA"
/sex="hermaphrodite, male"
/tissue_type="whole animal"
/tissue_tyge="waried"
/tissue_tyge="varied"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A complementary view of the C. elegans genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Caenorhabditis elegans"
                                                                                                                                                                                          /organism="Caenorhabditis elegans"
/strain="CB1489 him-8(e1489)"
/db_xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ouery Match 5.1%; Score 70.2; DB 11; Best Local Similarity 56.0%; Pred. No. 0.00019; Matches 149; Conservative 0; Mismatches 116;
               Genome Biology Lab.
National Institute of Genetics
Yata 1111, Mishima, Shizuoka 411, Japan
Yata 1111, Mishima, Shizuoka 411, Japan
Fax: 81-559-81-6854
Fax: 81-559-81-6855
Email: ykohara@lab.nig.ac.jp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genome Biology Lab.
National Institute of Genetics
Yata Ill, Mishima, Shizuoka 411, Japan
Tel: 81-559-81-6854
Fax: 81-559-81-6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: ykohara@lab.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (2000)
Contact: Yuji Kohara
                                                                                                                                                                        1. .360
                                                                                                                                                                                                                                                                                                                                                                            19
                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AU113471/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             С
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea
; Rhabditidae; Peloderinae; Caenorhabditis.

I (bases 1 to 360)
Koharary., Motohashi,T., Tabara,H., Watanabe,H., Sugimoto,A., Sano,M., Miyata,A. and Nishigaki,A.

Expression map of the C.elegans genome
Unpublished (1996)
                                                                                                                                                                                                                                                                                                        /clone_lib="unpublished oligo-capped cDNA library, stage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C13829 360 bp mRNA EST 28-DEC-1998 C13829 Yuji Kobara unpublished CDNA Caenorhabditis elegans CDNA clone ykl83c7 5', mRNA sequence. C13829 C13829. I GI:1561382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      159 ttattggttcaaaccggatggcgtggagacatggtattcgaaagaattcatgggatcttt 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   339 aatoattotoatootogtoattgttotggagoocactgaagattooatgtootggttttt 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      110 GAAAGAGAGTTCACCAACAGATCGATGGTATCTTGTTTATATAATTTTACAATGCACGG 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  attoggagitettetgecatggaataigtteattactategecectgagiattaigigaa 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             219 gacgattggctcacaacttccaaacgcaagcattaatgttttcaacctgttcctcattat 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               279 tgctggtcccctgatctaccgcgtctttgctccggtttgcttcaacatcgtcaacctgac 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            398 GGTCATIGITATICITGCCATITITGTAACACCATCTCCAGACAGTGTTACATGGTTTTA 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39 gcaggaagcatttccaagagacaagtacaatattgtctactggctcgtcattcttgttgg 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   338 GGTAGGTTTCATGATGCTTCGAGTTGTGCTTCCTCATTGTGAACTGCATTTTGATTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               230 TTATTGGTTTAACA-----ATACAAATTATCAAGACAGTTTTATGTCAATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 70.8; DB 10; Length 495;
Pred. No. 0.00013;
); Mismatches 182; Indels 12

    495
/organism="Caenorhabditis elegans"

               Contact: Yuji Kohara
Genome Biology Lab.
National Institute of Genetics
Yata 1111, Mishima, Shizuoka 411, Japan
Tel: 81-559-81-6855
Exx: 81-559-81-6855
Email: ykohara@lab.nig.ac.jp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  458 TATTGTTACTCTAATCATCATAATGGCTATGAATTT 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       399 ctgggtaactcttggaatggcgacttcaatcaattt 434
                                                                                                                                                                                                                                                                                                                                              /sex="Hermaphrodite"
/tissue_type="whole animal"
/dev_stage="L1"
                                                                                                                                                                                                                                      /strain="N2"
/db_xref="taxon:6239"
/clone="yk1015b04"
                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.1%;
Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                   146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  202:
                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
```

g δy g ò g ò q ò g ò q ŏ

ò

VERSION

RESULT C13829

ij

Gaps

1;

```
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                            1075
                                                                                                                                                                                                                                                                                                             AU114995/c
                                                                                                                                                                                                                                                                                              RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                            qq
                                                                                                                                              δ
                                                                                                                                                                              g
                                                                                                                                                                                                              ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dβ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Bukaryota: Metazoa: Nematoda; Chromadorea; Rhabditida; Rhabditoidea
; Rhabditidae; Peloderinae; Caenorhabditis.
1 (bases I to 300)
Koharra,Y., Shin-i,T., Thierry-Mieg,J., Thierry-Mieg,D., Suzuki,Y.
and Sugano,S.
                                                                                                                                                                                                              .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                         1084 tttgagtctactgacatttttgtgattggtggaattgccatgtcttttcacatggatac 1143
                                                                                                                                                                                                                                                                                                                                                                       1144 ctcagogototggcaatgggatacactocaaaogtogtgocatotoactacaagattt 1203
                                                                                                                                                                                                                                                                                                                                        239 TTCACCAACGAATGGATCTTCTTTTTGGTAACACATTATTGGCATTCACAAGTGGATAT 180
                                                                                                                                                                                                                                                                                                                                                                                         179 TTCTCATCTTTGGGAATGATGTATACACCACGTGTCTGCCCACCGGAATACTCAAAATTA 120
                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AU115402 300 bp mRNA EST 19-OCT-2000 AU115402 unpublished oligo-capped cDNA library Caenorhabditis elegans cDNA clone yk732cll 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
      /db_xref="taxon:6239"
/clone="yk708a4"
/clone_lib="unpublished oligo-capped cDNA library"
/sex="Hermaphrodite"
/tissue_type="whole animal"
/dev_stage="varied"
/ to 59 g 77 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="unpublished oligo-capped cDNA library"
                                                                                                                                                                                                              ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                     1204 geogeteagetttecgtttgeactettatggttggeetteteaceggtgge 1254
                                                                                                                                                                              Length 300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 300;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A complementary view of the C. elegans genome Unpublished (2000)
Contact: Yuji Kohara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   elegans'
                                                                                                                                                                           Score 67.8; DB 10;
Pred. No. 0.00061;
0; Mismatches 102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 4.1%; Score 57.6; DB 10; Best Local Similarity 52.5%; Pred. No. 0.072; Matches 126; Conservative 0; Mismatches 114;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genome Biology Lab.
National Institute of Genetics
Yata 111, Mishima, Shizuoka 411, Japan
118. 81-559-81-6854
Fax: 81-559-81-6855
Email: ykohara@lab.nig.ac.ip.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ų.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="whole animal"/dev_stage="varied"

    300
    /organism="Caenorhabditis

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /strain="N2"
/db_xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex="Hermaphrodite"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ykohara@lab.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone="yk732c11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AU115402.1 GI:10928969
                                                                                                                                                                           Query Match
Best Local Similarity 55.8%;
Matches 129; Conservative (
/strain="N2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 10
AU115402/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                          Dp
                                                                                                                                                                                                                                                                                                                                       Dp
                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                           ò
```

```
Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Eukaryota: Metazoa: Nematoda: Chromadorea: Rhabditida; Rhabditoidea
; Rhabditidae: Peloderinae; Caenorhabditis.
1 (bases I to 300)
Khabara.Y., Shin-i.T., Thierry-Mieg.J., Thierry-Mieg.D., Suzuki.Y.
and Sugano.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                            1135 catggatacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctcactac 1194
                                                                                                                                                                                                                                                                                                                                                              1015 cgtgctctttcattccattcttcttcttctgcaactatcgtgccagacgcgtgcttat 1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1082 tctttgagtctactgacatttttgtgattggtggaattgccatgtcttttcacatggat 1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1142 acctcagcgctctggcaatgggatacactccaaacgtcgtgccatctcactactcaagat 1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1202 ttgccgctcagctttccgtttgcactcttatggttggccttctcaccggtggcctgtggc 1261
                                                                                                                                                                             239 CCTGTTTGGTTTAAGAATGAATGGTGGTTCACTATTGGATGTACCATAATGGCATTTACT 180
                                                                                                                                                                                                                                                                                                        179 TGTGGTTATATGAGCAGTTTAGCGCTGATTTATACACCAAGCAAAGTGCCAGCTAGATAT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180 ATATGAGCAGTTTAGCGCTGATTTATACACCAAGCAAAGTGCCAGCTAGATATCAGAAGC 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AU114995 300 bp mRNA EST 19-OCT-2000 AU114995 unpublished oligo-capped CDNA library Caenorhabditis elegans CDNA clone yk724f10 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone="yk724f10"
/clone_lib="unpublished oligo-capped cDNA library"
/sex="Hermaphrodite"
                                     299 CGAACCGTATTCATTCCATTTTATCTTTTCTGTAATTATCGTCCAGATACTAGAAGATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240 GGTTTAAGAATGAATGGTGGTTCACTATTGGATGTACCATAATGGCATTTACTTGTGGTT
                                                                                                                    cctgttttctttgagtctactgacatttttgtgattggtggaattgccatgtcttttca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.1%; Score 57.4; DB 10; Length 300; 49.5%; Pred. No. 0.079; tive 0; Mismatches 151; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A complementary view of the C. elegans genome Unpublished (2000)
Contact: Yuli Kohara
Genome Biology Lab.
National Institute of Genetics
Yata 111, Mishima, Shizuoka 411, Japan
Tel: 81-559-81-6854
Fax: 81-559-81-6855
Email: ykohara@lab.nig.ac.jp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Caenorhabditis elegans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="whole animal"
/dev_stage="varied"
67 c 53 q 84 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AU114995.1 GI:10928562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /strain="N2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity 49.5
Matches 148; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96
```

/

ŏ q

```
EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                 1021
                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                1141
                                                                                                                                                                                                                                                                                                                                                                                                                           1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                         901
                                                                                                      196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1
AA406898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                            q
                                                                                                      ó
                                                                                                                                         P
                                                                                                                                                                                 ò
                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                òγ
                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                              óλ
                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                             ŏλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lubrited (02-JUN-1999) Genoscope - Centre National de Sequencage : BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr - Web : www.genoscope.cns.fr)

- Determination of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Gsoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; cn bw sp. the same strain used for the BDGP's pl and EST libraries. A more detailed description of the library and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can be found at http://bacpac.med.buffalo.edu/drosophila_bac.htm.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;
0
                                                                                                                                                                                              Drosophila melanogaster genome survey sequence TET3 end of BAC # BACR12K22 of RPCI-98 library from Drosophila melanogaster (fruit fly), genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1262 ccgttgttattgagcacttcgtggacaagccaagtatcttataaatatttatagcatta 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661 acaaagcaagatttctaccactatcaccatcaaaaaggaatggaaattcgcgaaaaggcg 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
120 TAAGTGGAATGCTTGCATCAATTTTCCTAATGCTCGGAATTCTCATCGGAGTCGCCAGTA 61
                                                                                                                                                                                                                                                                                                                                                                               Eukaryota, Metazoa, Arthropoda, Tracheata, Hexapoda, Insecta, Pteryyota, Neoptera, Endopterygota, Diptera, Brachycera, Muscomorpha, Ephydroidea, Drosophilidae, Drosophila, I (bases 1 to 997).
                                                                                                60 CACCCATTGCTGCATGGGGGGGGGGTGGAAGAAGAAGAACATGACTGTATAA 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      841 gttaccactcgtggagattccggcttcctaaacaaaattatgtctgaaaacgatgaaatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721 gaaaccgacagaccgtctccatccattctttggaccacattcacaaactgttatgggcaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 13; Length 997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Drosophila melanogaster"
/db_xxef="Laxon:7227"
/clone_lib="RPCI-98"
/clone="BACR12K22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
4.0%; Score 50.2; UB 13;
Best Local Similarity 18.6%; Pred. No. 0.1;
Matches 116; Conservative 172; Mismatches 335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             258 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13 g
                                                                                                                                                                                                                                                                                                                                                                 Drosophila melanogaster
                                                                                                                                                                                                                                                                                                    AL060767.1 GI:4943573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             o 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                            fruit fly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                          RESULT 12
CNS005TE
LOCUS
                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ٥٠
                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

ŏ

ò

```
MBACCZYCOTT3 200 UP MRNA EST 01-MAY-1997 MBACZYFO7T3 Brugia malayi cDNA clone AFC27F07 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baron, L. and Jones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="Brugia malayi adult female cDNA (SAW96MLW-BmAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /dev_stage="adult"
/lab_host="XL1-Blue MRF'"
//lab_host="XL1-Blue MRF'"
//note="Vector: Lambda Uni-ZAP XR; Site_1: Eco RI; Site_2:
Xho I; Lymphatic filarial nematode parasite of humans.
mRNA was prepared from approximately 50 adult females
isolated from the peritoneal cavity of jirds and
converted to double-stranded cDNA using reverse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukāryota; Metazoa; Nematoda; Chromadorea; Spirurida; Filarioidea; Onchocercidae; Brugia.
1 (bases 1 to 258)
Blaxter, M.L., Waterfall, M., Daub, J., Lizotte, M., Baron, L. and Jone:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1996)
Contact: Blaxter ML
Institute of Cell, Animal and Population Biology
University of Edinburgh
Ashworth Labs, King's Buildings, West Mains Road, Edinburgh, EH9
                                                                                                                                                                                                                     cttttcattccattcttcttcttctgcaactatcgtgtccagacgcgtgcttatcctgtt 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                    tacctcagcgctctggcaatgggatacactccaaacgtcgtgccatctcactactcaaga 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tttgccgctcagctttccgtttgcactcttatggttggccttctcaccggtggcctgtgg 1260
                                                                                                            gettecaagatteactggeegaeacecegttaeeteaaatttgeeataatettgegtget 1020
                                                                                                                                                                                                                                                                                                                                     ttctttgagtctactgacatttttgtgattggtggaattgccatgtcttttcacatgga 1140
                                                                                                                                                                                                                                                                                                                                                                                            835
                                                                                                                                            tacactttgctcacaagtttcctcgtcttcaatttgttcgctgcgattggatccatagtt 960
                                                                                                                                                                                                                                                                                                                                                                     836 YCTYCCTCYTYYYCTYCYXYYYTCYTYTTMTYTYYYYTYTYTYTYTYTYTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: mark.blaxter@ed.ac.uk
The ABI trace of this sequence can be viewed at
http://www.sanger.ac.uk/brugia/AFC/MBAFC27F07T3.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ,S.J.
Genes expressed in adult female Brugia malayi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Brugia malayi"
/db_xref="taxon:6279"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1261 cccgttgttattgagcacttcgt 1283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          956 TYYYTTYTTTTTTTT 978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /clone="AFC27F07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA406898.1 GI:2064981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3JT, UK.
Tel: +44 131 650 6760
Fax: +44 131 670 5450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Brugia malayi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seq primer: T3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brugia malayi
```

q δλ g ò QQ

ò

```
(StyleMin-OwnL3) "Adv_stage="molting L3"

/dev_stage="molting L3"

/dev_stage="molting"

/dev_stage="
                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Onchocerca volvulus.
Onchocerca volvulus
Eukaryota, Metazoa, Nematoda, Chromadorea, Spirurida, Filarioidea,
transcriptase and oligo(dT) followed by RNase H and DNA pol I. The library has 5 x 10f6 independent recombinants and the average insert size is -900bp.The library was constructed by Michelle Lizotte-Waniewski. The library is available from Dr.S.A.Williams, email:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Steven A. Williams
Molecular Parasitology
Smith College Department of Biological Sciences
Department of Biological Sciences, Clark Science Center, Smith
College, Northampton, MA, 01063, USA
Tel: 4135853826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .656
/organism="Onchocerca volvulus"
/stran="Rumba Cameroons"
/db xref="taxon:6282"
/clone="SWOv3MCAM40A01"
/clone_lib="Onchocerca volvulus molting L3 larva cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Onchocercidae; Onchocerca.

1 (bases 1 to 656)
Williams, S.A., Lizotte-Waniewski, M., Laney, S. and Lustigman, S. Genes expressed in molting L3 larvae of Onchocerca volvulus Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         102 eggagttettetgecatggaatatgtteattaetategeeeetgagtattatgtgaatta 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AW409482 656 bp mRNA EST 08-FEB-2000 SWOv3MCAM40A01SK Onchocerca volvulus molting L3 larva cDNA (SL96MLW-OvmL3) Onchocerca volvulus cDNA clone SWOv3MCAM40A01
                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                  Length 258;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                     26;
                                                                                                                                                                                                                                                                                                                                                                  DB 10;
                                                                                                                                                                                                                                                                                                                                                              Score 54.4; DB Pred. No. 0.33; D; Mismatches
                                                                                                                                         library is available from genome@smith.edu." 46 c 52 g 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fax: 4135853786
Email: genome@Smith.edu
Seg primer: pBluescript SK.
Location/Qualifiers
                                                                                                                                                                                                                        б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TAMATTTGTGGAGGTGAGCGCCGA 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               162 ttggttcaaaccggatggcgtgga 185
                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA sequence.
AW409482
AW409482.1 GI:6935020
                                                                                                                                                                                                                                                                                                                                                              3.9%;
l Similarity 61.1%;
88; Conservative
                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                           ø
                                                                                                                                                                                                                        99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          139
                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 1
AW409482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
```

.Ý

```
Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea
1, Rhabditidae; Peloderinae; Caenorhabditis.
1 (bases 1 to 345)
Kohara,Y., Shin-i,T., Thierry-Mieg,J., Thierry-Mieg,D., Suzuki,Y. and Sugano,S.
                                                                                                                                                                                                                                                            5
and DNA pol I. The library was constructed in the lambda univ. Lap XR vector and has 1 x 10E6 independent recombinants and the average insert size is -1200 bp. The library was constructed by Sara Lustigman and Michelbe Lizotte-Waniewski in the Laboratory of Dr. S. A. Williams. The library is available from Dr. Sara Lustigman (email: slustigm@nybc.crg)."
                                                                                                                                                                                                                                                                                                                                                                                                                   163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            453
                                                                                                                                                                                                                                                                                                 tattcgaaagaattcatgggatctttgacgattggctcacaacttccaaacgcaagcatt 252
                                                                                                                                                                                                                                                                                                                                        44 TATGCGCTTCATTTTTTGTCATATCTTGGTCTTGCTTCACAGATACCGAATTTGCTACTC 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                          313 gittgeitcaacategicaacetgacaateatteicateetegicattgitetggageec 372
                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AU109592 345 bp mRNA EST 19-OCT-2000 AU109592 unpublished oligo-capped cDNA library Caenorhabditis elegans cDNA clone yk709a4 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                     tttagcaatgggctatatgaaaactcggtttatggagttggtggcgattttccgcacacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       278 GCTGCTAATGGTATTTATCAAAGTTCACTTTATGGTTTAACTGCCACCTTCCCGCCTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              253 aatgitticaaccigiticcicattatigciggiccccigatciaccgcgictitigciccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164 CTTTTTGTTTTGCGGGTTATCACTCTAATAACTCTCATATTCACTCTTATT -----AAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          218 ACTICTCATATGATCGGTGTATTTTTCTTTATTACCATGACCACAGTGGTGTTATTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         553 atoggagtgacctattttctgaatgatgagcctaaacttgttgcaatcgtctatttcggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     493 tacattggcgctctcttgattggaaacaacatttgcggattgctgataacggttgtgaaa
                                                                                                                                                                                                                                                            10;
                                                                                                                                                                                                                 Length 656;
                                                                                                                                                                                                                                          Pred. No. 0.5;
0; Mismatches 270; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                673 ttctaccactatcaccatcaaaaaggaatggaaattcgcgaaaag 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   514 TTTTACAATTACTATATGAAAAAACAAAAATTATGATGATAAG 558
                                                                                                                                                                                                                     Score 53; DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (2000)
Contact: Yuji Kohara
Genome Biology Lab.
National Institute of Genetics
Yata 1111, Mishima, Shizuoka 411, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A complementary view of the C. elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AU109592.1 GI:10923159
                                                                                                                                                                                                                   3.8%;
                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                            245;
                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                          Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
DEFINITION
                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                   193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  433
                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AU109592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                 Dβ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
```

```
Tel: 81-559-81-6854
Fax: 81-559-81-6855
Email: ykohara@lab.nig.ac.jp.
Location/Qualifiers
1. 345
/organism="Caenorhabditis elegans"
/strain="N2"
/db_xref="taxon:6239"
/clone="ykyTogat"
/clone="lyb70gat"
/clone="lyb70gat"
/clone="lyb70gat"
/clone="lyb70gat"
/clone="lyb70gat"
/clone="lyb80gat"
/clone="lyb80gat"
/clone_lib="unpublished oligo-capped cDNA library"
                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                       FEATURES
```

0; Gaps . 0 Ouery Match 3.6%; Score 50.4; DB 10; Length 345; Best Local Similarity 69.0%; Pred. No. 2; Matches 69; Conservative 0; Mismatches 31; Indels 0.

52 ccaagagacaagtacaatattgtctactggctcgtcattcttgttggattcggagttctt 111 Q

ó

ολ

Search completed: February 28, 2002, 00:25:49 Job time: 3830 sec

THIS PAGE BLANK (USPTO)

Appli Appli

Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence Sequence

Sequence Sequence Appli Appli Appli Appli

Appli Appli

Sequence Sequence

Sequence Sequence Sequence

Sequence

OM nucleic

uo O

Sequence:

Searched:

Database

Result

Š

```
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. 1670367
GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: FALKNER, F. G.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
                                              US-08-378-235B-8
US-09-007-005-32
US-09-007-005-3
US-09-244-796-3
US-09-265-087-3
US-08-265-087-3
US-08-265-087-3
US-08-261-173-3
US-09-369-618-3
US-09-369-618-3
US-09-369-618-3
US-09-369-618-3
US-09-369-617-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 26-AUG-1991
ATOREX/AGENT INFORMATION:
NAME: BENT, Stephen A.9, 768
RECISTRATION NUMBER: 39, 768
RECERENCE/DOCKET NUMBER: 30472/114 IMMU
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703)836-9300
TELEFAX: (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                              US-07-715-751B-2
                                                                                                                                                                                                                                                                                                                                                                                                  US-08-293-728-1
US-09-421-868-1
US-07-867-106-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EP 91 114 300.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
CLASSIFICATION: 435
PCICATICATION DATA:
APPLICATION NUMBER: US/07/935,313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/08232463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEX: 899149
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 7218 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: Foley & Lar
                                                                                                                                    277
277
1364
1364
1364
1364
1364
1364
306
31639
3468
3468
3468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; CLONE: pTZgpt-Fls
US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22313-0299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IMMEDIATE SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
\begin{array}{c} \mathbf{w} \, \mathbf{e} \, \mathbf{w} \, \mathbf{e} \, \mathbf{
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-232-463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1
  0000
                                                                                                                                                                                                                                                                                                                                                        0 0
                                                                                                                                                                                                              (without alignments)
6411.411 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1, Appli
209, App
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Appli
Appli
Appli
Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Appl
Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                         Sequence 14,
                                                                                                                                                                                      Search time 49.03 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seguence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Issued_Patents_NA:*
    /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
    /cgn2_6/ptodata///ina/5B_COMB.seq:*
    /cgn2_6/ptodata/2/ina/6A_COMB.seq:*
    /cgn2_6/ptodata/2/ina/6B_COMB.seq:*
    /cgn2_6/ptodata/2/ina/PcTUS_COMB.seq:*
    /cgn2_6/ptodata/2/ina/PcTUS_COMB.seq:*
                           GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-232-463-14
US-08-545-196B-10
US-08-545-196B-12
US-08-794-796-1
US-08-553-619B-8
US-08-664-164-1
US-08-664-164-1
US-08-868-416-1
US-08-868-416-1
US-08-838-057-1
US-08-834-306-22
US-08-934-416-11
US-08-934-416-11
US-08-728-323A-1
US-08-728-323A-1
US-08-728-323A-1
US-08-728-323A-1
US-08-728-323A-1
US-08-728-323A-1
US-08-728-323A-1
US-08-728-323A-1
US-08-728-323A-1
US-09-377-669A-20
US-09-377-669A-20
US-09-377-669A-20
US-09-377-669A-20
US-09-386-690-1
US-09-386-690-1
US-09-377-669A-20
US-09-377-669A-20
US-09-377-669A-20
US-09-377-698-690-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-461-697-1
US-08-415-593-40
US-08-415-593-39
US-08-339-582-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               351203 seqs, 113238999 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-663-112-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                   February 27, 2002, 23:24:08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Maximum Match 1008
Arsting first 45 symmaries
                                                                                                                                    - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                    IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Minimum Match 08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             852
1991
2128
519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2621
5852
1400
1400
1400
581
581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3489
32207
32207
972
51259
289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2238
3645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       335.33
335.88
335.44
355.44
35.24
35.24
35.35
                                                                                                                                                                                                                                                                                                                          Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
```

Sequence

34.

```
Query Match
Best Local Similarity
Matches 59; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 19
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE:
US-08-545-196B-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٧
       US-08-545-196B-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 3
US-08-545-1968-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1087 gagtctactgacatttttgtgattggtggaattgccatgtcttttcacatggatacctc 1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   967 aagattcactggccgacaccccgttacctcaaatttgccataatcttgcgtgctctttc 1026
                                                                                                                                                                                                                                                                                                                                                            1027 attccattcttcttcttctgcaactatcgtgtccagacgcgtgcttatcctgttttcttt 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1147 agegetetggeaatgggatacaetecaaaegtegtgeeateteaetaeteaagatttgee 1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      geteagettteegtttgeaetettatggttggeetteteaeeggtggeetgtggeeegtt 1266
                                                                                                                                             907 ttgctcacaagtttcctcgtcttcaatttgttcgctgcgattggatccatagttgcttcc 966
                                                                                 Gaps
                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 10, Application US/08545196B
Patent No. 6080577
GENERAL INFORMATION:
APPLICANT: MELKI, JUDITH
APPLICANT: MINNICH, ARNOLD
TITLE OF INVENTION: SURVIYAL MOTOR NEURON (SMN) GENE: A GENE
TITLE OF INVENTION: FOR SPINAL MOTOR NEURON (SMN)
TITLE OF INVENTION: FOR SPINAL MOTOR NEURON (SMN)
TITLE OF DEPART OF SEQUENCES: 65
CORRESPONDENCES: 65
CORRESPONDENCE ADDRESS:
ADDRESSEE: BIRCH, STEWART, KOLASCH AND BIRCH, LLP
STREET: PO BOX 747
4.9%; Score 68; DB 1; Length 7218; ilarity 4.2%; Pred. No. 1.4e-09; Conservative 234; Mismatches 149; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1267 gttattgagcacttcgtggacaagccaagtatcttataaa 1306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1420 YYYYYYYYYYYYYYYYGTACCAAATTCTTCTATCTTTAA 1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ., ve
.....: US/08/545,196B
N9-OCT-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 2121-110P TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 205-8000
TELEFAX: (703) 205-8050
INFORMATION FOR SEQ ID NO: 10:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: FARACI, C. J.
REGISTRATION NUMBER: 32,350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY: USA
ZIP: 22040-0747

COMPUTER READABLE FORM:

"TOTAL TOTAL TOTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1582 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
FILING DATE: 19-OCT
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: BIRCH, STREET: PO BOX 747
CITY: FALLS CHURCH
                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-545-196B-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٧A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE:
       Query Match
                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1207
                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ó
                                                                                              1296 tatottataaaatatttatagoattagagtatacttgttataaggttgtttttattaagotg 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                    GENE: A GENE
     Length 1582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1582;
                                    34; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                           ĽГР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/545,196B
                                                                                                                                                                                                                                                                                                                         APPLICANT: MUNNICH, ARNOLD
APPLICANT: MUNNICH, ARNOLD
TITLE OF INVENTION: SURVIYAL MOTOR NEURON (SMN)
TITLE OF INVENTION: FOR SPINAL MOSCULAR ATROPHY
NUMBER OF SEQUENCES: 65
CORRESPONDENCE ADDRESS:
ADDRESSE: BIRCH, STEWART, KOLASCH AND BIRCH,
STREET: PO BOX 747
CITY: FALLS CHURCH
 Score 38.6; DB 3;
Pred. No. 0.17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 38.6; DB 3;
Pred. No. 0.17;
                                                                                                                                              1356 tggaataaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1356 tggaataaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/POCKET NUMBER: 2121-110P
TELECOMMUNICATION INFORMATION:
TELEFENORE: (703) 205-8000
TELEFAX: (703) 205-8050
INFORMATION FOR SEQ ID NO: 12:
                                                                                                                                                                                                                                                                         ; Sequence 12, Application US/08545196B
; Patent No. 6080577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTAX:
ZIP: 22040-0747
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
CMBHITER: IBM PC COMPALIBLE
COMPATIBE: IBM PC COMPALIBLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY AGENT INFORMATION:
NAME: FARACI, C. J.
REGISTRATION NUMBER: 32,350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.8%;
2.8%;
il Similarity 63.4%;
59; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 1582 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59; Conservative
```

COUNTRY:

```
1297 atcttataaatatttatagcattagagtatacttgttatatgttgttttattaagctgt 1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    723 ATTITAAATAAGTGTGTTTAATTAAAGTTTGCTTTCTGTGTGTTGTGCTTAATAATAAT 782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Woodcock Washburn Kurtz Mackiewicz & No. 5389526ris
STREET: One Liberty Place 46th Floor
CITY: Philadelphia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INCORMATION:
APPLICANT: Slade, Martin B
APPLICANT: Chang, Andy C M
APPLICANT: Williams, Keith L
TITLE OF INVENTION: Improved Plasmid Vectors for Cellular
TITLE OF INVENTION: Slime Moulds of the Genus Dictyostelium
NUMBER OF SEQUENCES: 19
CORRESPONDENCE ADDRESS:
ADDRESSEE: Woodcock Washburn Kurtz Macklewicz & No. 538955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 36; DB 2; Length 2621;
Pred. No. 1.2;
0; Mismatches 35; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chimeric tomato spotted wilt virus S RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                               SOFTWARE: Patentin Release #1.0; Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1357 ggaataaaataattattaaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          783 AAAATAACAAAAACAACGAAAACAAAAAATAA 814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/07/867,106 FILING DATE: 19920625 PRIOR APPLICATION DATE: APPLICATION NUMBER: PCT/AU90/00530 APPLICATION NUMBER: PCT/AU90/00530
                                                                                                        US/08/553,619B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PC-DOS/MS-DOS
                                               PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-07-867-106-2/c
; Sequence 2, Application US/07867106
; Patent No. 5389526
                                                                                                                   December 1, 1995
N: 800
                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: MATCHEY/NOE., Lynn
REGISTRATION NUMBER: 34,869
REFERENCE/DOCKET NUMBER: 137-
TELEPHONE: 415/854 3588
TELEPHONE: 415/857-1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOG'NG SOFTWARD
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.6%;
                                                                                                                                                                                                                                                                                                                                                          2621 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.69
Best Local Similarity 62.09
Matches 57; Conservative
                                                                                                                                                                                                                                                                                             TELEFAX: 415/857-1125
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                              FILING DATE: De CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: PA
COUNTRY: USA
ZIP: 19103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-553-619B-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 36; DB 2; Length 1164;
Pred. No. 0.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15; Indels
                                                                                       APPLICANT: Emery, John
APPLICANT: Tan, KB
APPLICANT: Truneh, Alem
APPLICANT: Young, Peter
TITLE OF INVENTION: Tumor Necrosis Related Receptor,
TITLE OF INVENTION: TR4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: No. 5919705artis Crop Protection
STREET: 975 California Avenue
CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                          ZIP: 19406
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: Diskette
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 8, Application US/08553619B
Patent No. 5913705
BAPPLICANT: DeHaan, Petrus T.
TITLE OF INVENTION: Virus Resistant Plants
NUMBER OF SEQUENCES: 30
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                          ADDRESSEE: SmithKline Beecham Corporation
STREET: 709 Swedeland Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/794,796
FILING DATE: 04-FEB-1997
FRIGSSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GH50000
                          Sequence 1, Application US/08794796
Patent No. 5885800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REGISTRATION NUMBER: 34,344
REFERENCE/DOCKET NUMBER: GH:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 610-270-5219
TELEFAX: 610-270-4026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 2.6%;
Best Local Similarity 75.0%;
Matches 45; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Han, William T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
LENGTH: 1164 base pairs
                                                                                                                                                                                                                                                                                                   King of Prussia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              single
                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; MOLECULE TYPE: CDNA
US-08-794-796-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                       STATE: PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-553-619B-8
```

NAME: Feeney, Joanne Longo REGISTRATION NUMBER: 35,134 REFERENCE/DOCKET NUMBER: RICE-0002

ZIP: 94304 COMPUTER READABLE FORM:

USA

COUNTRY:

S

CITY: STATE:

qq δλ

FILING DATE: 02-NOV-1989 ATTORNEY/AGENT INFORMATION:

ö

```
Length 1400;
                                                                                                                                                                                                                                                                                                                                                                                     22; Indels
                                                                                                                                                                                                       LIBRARY: sporozoite cDNA cloned in Lambda ZAPII CLONE: Em70-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Tomley, Fiona M.
APPLICANT: Dunn, Paul P. J.
APPLICANT: Bunn, Paul P. J.
APPLICANT: Wermeulen, Arno N.
TITLE OF INVENTION: Coccidiosis poultry vaccine
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                     DB 1;
                                                                                                                                                                                                                                                                                                                                                 Score 35.8; DB Pred. No. 1; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Organon Teknika Corporation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: EP 93.309078.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/338,057
                                                                                                                                                                         sporozoite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/08338057
Patent No. 5795741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Gormley, Mary E.
REGISTRATION NUMBER: 34,409
TELECOMNUNICATION INFORMATION:
TELEPHONE: (301) 258-5200
INFORMATION FOR SEQ ID NO: 1:
                                            MOLECULE TYPE: cDNA to mRNA HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1330 Piccard Drive
                                                                                                                                                                                                                                                                                                                                                 2.68;
                                                                                                                                 ORGANISM: Eimeria maxima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 12-NOV-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                 C-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 1400 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                              Query Match 2.65
Best Local Similarity 69.09
Matches 49; Conservative
            double
                                                                                                                                                STRAIN: Houghton
DEVELOPMENTAL STAGE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1378 aaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1386 AAAAAAAAA 1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                           ANTI-SENSE: NO
FRAGMENT TYPE: CORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
                                                                                                                                                                                      IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 20850
                                                                                                                                                                                                                                                         ; NAME/KEY;
; LOCATION:
US-08-464-164-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-338-057-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                                                                                                                           1265 tigttattgagcacttcgtggacaagccaagtatcttataaatatttatagcattagagt 1324
                                                                                                                                                                                                                                                                                                                                                                                                                                                             2096 TTATTAAAAAAAAAATCAAAAAAAACCAAAGTAATTAATATTTATAATGAGGGTTTTTT 2037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
0
                                                                                                                                                                                                                                                                                                                                                             DB 1; Length 5852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: Akzo No. 5614195el Patent Department STREET: 1300 Piccard Drive, Suite 206
                                                                                                                                                                                                                                                                                                                                                                                              55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Tomley, Fiona M.
APPLICANT: Dunn, Paul P. J.
APPLICANT: Bumstead, Janene M.
APPLICANT: Wermeulen, Arno N.
TITLE OF INVENTION: Coccidiosis poultry vaccine
                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches
                                                                                                                                                                                                                                                                                                                                                             Score 36;
                                                                                                                                                                                                                                                                                                                                                                             Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/464,164
FILING DATE: June 2, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application US/08464164
Patent No. 5614195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Gormley, Mary E.
REGISORATION UNDBER: 34,409
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 258-5200
INFORMATION FOR SEO ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 1400 base pairs
TYPE: nucleic acid
TELECOMMUNICATION INFORMATION: TELEPHONE: 215-568-3100
                                                                                                                                                           MOLECULE TYPE: DNA (genomic)
ANTI-SENSE: NO
                             TELEFAX: 215-566-3439
INFORMATION FOR SEQ ID NO: 2: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                           2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                      5852 base pairs
                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 55.69
Matches 69; Conservative
                                                                                                                             single
                                                                                                                                                                                                                                                                    CDS
2378..5038
                                                                                                                                                                                                                CDS
2378..5038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                       NUCLEIC ACID
                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: Rockville
STATE: Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1385 aaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1976 GAAA 1973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: U
ZIP: 20850
                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                    NAME/KEY:
LOCATION:
                                                                                                                                                                                                                NAME/KEY:
                                                                                                                                                                                                                                 LOCATION:
                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                     US-07-867-106-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-464-164-1
                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qa
```

ó

ö

```
PREVENTION OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence.

Batent No. 501b5/2

GENERAL INFORMATION:

APPLICANT: Reed,Steven G.

APPLICANT: Skeiky, Yasir A.W.

APPLICANT: Skeiky, Yasir A.W.

APPLICANT: Lodes, Michael J.

TILE OF INVENTION: COMPOUNDS AND METHODS FOR THE DETECTION. AND PRESCRESPONDENCE ADDRESS:

ADDRESSED: 69

CORRESPONDENCE ADDRESS:

ADDRESSED: ADDRESSED: ADDRESS:

ADDRESSED: ADDRESSED: ADDRESSED:

ADDRESSED: ADDRESSED: ADDRESSED:
ADDRESSED: ADDRESSED: ADDRESSED:
ADDRESSED: ADDRESSED: ADDRESSED:
ADDRESSED: ADDRESSED: ADDRESSED:
ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED:
ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED: ADDRESSED
                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 581;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
COMPUTER: TBM PC COMPATIBLE
COMPUTER: DEAD FOR STREM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/557,309B
FILING DATE: 14-NOV-1995
CLASSIFICATION NUMBER: US/08/557,309B
FILING DATE: 14-NOV-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: MAKI, DAVID J.
REGISTRATION NUMBER: 31.392
REGISTRATION NUMBER: 210121.422
TELECOMMULCATION INFORMATION:
TELECOMMULCATION INFORMATION:
TELEPHONE: (200), 622-4900
                                                                                                                                                                                           LIBRARY: sporozoite cDNA cloned in Lambda ZAPII CLONE: Em70-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 35.4; DB 2;
Pred. No. 0.83;
                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                          2.6%; Score 35.8; D
69.0%; Pred. No. 1;
Live 0; Mismatches
                                                                                                                                              sporozoite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.6%; 61.3%;
                                                                                      Eimeria maxima
                             C-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (206) 682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 581 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 69.0
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: (206) 682-60 INFORMATION FOR SEQ ID NO:
ANTI-SENSE: NO
FRAGMENT TYPE:
ORIGINAL SOURCE:
ORGANISM: Eimeria max
STRAIN: Houghton
DEVELOPMENTAL STAGE:
IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1378 aaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1386 AAAAAAAAA 1396
                                                                                                                                                                                                                                                                                                               1..1368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                 ; NAME/KEY:
; LOCATION:
US-08-668-416-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-557-309B-22
                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 1400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                STRAIN: Houghton
DEVELOPMENTAL STAGE: sporozoite
IMMEDIATE SOURCE:
LIBRARY: sporozoite cDNA cloned in Lambda ZAPII
CLONE: Em70-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3: Akzo No. 5843722el Patent Department
1300 Piccard Drive, Suite 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZIP: 20850

CMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
APPLICATION NUMBER: US/08/668,416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: Tomley, Fiona M.
APPLICANT: Dunn, Paul P. J.
APPLICANT: Bunstead, Janene M.
APPLICANT: Vermeulen, Arno N.
TITLE OF INVENTION: Coccidiosis poultry vaccine NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
ADDRESSEE: Akzo No. 5843722el Patent Departmen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 35.8;
Pred. No. 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/464,164
FILING DATE: June 2, 1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-668-416-1; Sequence 1, Application US/08668416; Patent No. 5843722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: GORMLEY, MARY E.
REGISTRATION NUMBER: 34,40
TELECOMMUNICATION INFORMATION
  CDNA to mRNA
NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.6%;
Best Local Similarity 69.0%;
Matches 49; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (301) 258-5200
INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDNA to mRNA
                                                                                                                                           Eimeria maxima
                                                                             FRAGMENT TYPE: C-terminal ORIGINAL SOURCE: ORGANISM: Eimeria maxim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 1400 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1378 aaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1386 AAAAAAAAA 1396
                                                                                                                                                                                                                                                                                                                                                                  1..1368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 1300 Pic
CITY: Rockville
STATE: Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                             NAME/KEY: CDS
                                                           <u>2</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY: 11
MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                     ; LOCATION:
US-08-338-057-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ор
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ω
```

PREVENTION OF

```
1296 tatottataaatatttatagoattagagtatacttgttatatgttgtttttattaagotg 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Houghton, Raymond L.
Smith, John M.
McNeill, Patricia D.
VENTION: COMPOUNDS AND METHODS FOR THE DETECTION AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 581;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND SOYBEAN PALMITOYL-ACP THIO-ESTERASE GENES AND THEIR USE IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THE REGULATION OF FATTY ACID CONTENT OF THE OILS OF SOYBEAN AND CANOLA PLANTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUCLEOTIDE SEQUENCES OF CANOLA
                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PONT DE NEMOURS AND COMPANY
                                                                                                                                                3: SEED and BERRY LLP 6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 35.4; DB 4;
Pred. No. 0.83;
0; Mismatches 36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1356 tggaataaaataattattaaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     546 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 210121.422C2 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/993,674A FILING DATE: 18-DEC-1997 CLASSIFICATION: 424 ATTORNEY/AGENT INFORMATION: NAME: MAKI, David J. REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 11, Application US/08793410
Fatent No. 595555
Tarber Invermation:
APPLICANT: HITZ, WILLIAM DEAN
TITLE OF INVENTION: NUCLEOCTIDE SEQUENTION: THE REGULATION:
TITLE OF INVENTION: THE REGULATION
TITLE OF INVENTION: CONTENT OF THE
TITLE OF INVENTION: CONTENT OF THE
   Skeiky, Yasir A.W.
Lodes, Michael J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (206) 682-6031
FORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 581 base pairs
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.6
Best Local Similarity 61.3
Matches 57; Conservative
                                                                                       TITLE OF INVENTION: CC
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S: E. I. DU
1007 MARKET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 19898
COMPUTER READABLE FORM:
                                                                                                                                                                                                   Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WILMINGTON
                                                                                                                                                                                                                                      98104-7092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DELAWARE
                                                                                                                                                                                  Seattle
                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (;
INFORMATION FOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-793-410-11/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;
US-08-993-674A-22
                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                        COUNTRY:
                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                   STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                     PREVENTION OF T
 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                  tatottataaatatttatagoattagagtatacttgttatatgttgttttattaagotg 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1296 tatottataaatatttatagoattagagtatacttgttatatgttgtttttttttattaagotg 1355
                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                         APPLICANT: Reed, Steven G.
APPLICANT: Skelfy, Yasir A.W.
APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond L.
APPLICANT: Houghton, COMPOUNDS AND METHODS FOR THE DETECTION AND NUMBER OF SEQUENCES: 65
CORRESPONDENCE ADDRESS:
 .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 35.4; DB 3; Length 581;
pred. No. 0.83;
0; Mismatches 36; Indels
 36; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                       5: SEED and BERRY LLP
6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.30
 Mismatches
                                                                                                        1356 tggaataaaataattattaaaaaaaaaaaaa 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1356 tggaataaaataattattaaaaaaaaaaaaa 1388
                                                                                                                             546 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 210121.422C1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/834,306
FILING DATE: 15-ARR-1997
FLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; Sequence 22, Application US/08993674A
; Patent No. 6228372
; GENERAL INFORMATION:
                                                                                                                                                                                                                 US-08-834-306-22; Sequence 22, Application US/08834306; Patent No. 6054135; Patent INFORMATION:
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (206) 682-6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Reed, Steven G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : 581 base pairs
nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: (206) 682-603 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 2.6
Best Local Similarity 61.3
Matches 57; Conservative
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
ZIP: 98104-7092
                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE: War
                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-993-674A-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TOPOLOGY:
US-08-834-306-22
57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE:
Matches
                                                                                                                                            Dp
                                    à
                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
```

ö

```
1282 CCTCCTCGTCCTCCTCTTGTCCTCCTCCTCGTCATCCTCCTCGTCCTCATTGTCCTCAT 1223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   264 cctgttcctcattattgctggtcccctgatctaccgcgtctttgctccggtttgcttcaa 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Chang, Yuan
APPLICANT: Bohenzky, Roy A.
APPLICANT: Bohenzky, Roy A.
APPLICANT: Braso, James J.
APPLICANT: Moore, Patrick S.
APPLICANT: Moore, Patrick S.
TITLE OF INVENTION: POLYPEPTIDES FROM KAPOSI'S SARCOMA-ASSOCIATED
TITLE OF INVENTION: HERPESVIRUS, DNA ENCODING SAME AND USES THEREOF CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                              Length 3489;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1222 CATCGTCATCCTCGTCGTCCTCGTCGTCCTCCTCGTCGTCTTCT 1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          324 catcgtcaacctgacaatcattctcatcctcgtcattgttctggagccc 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                        28,678
RER: 0575/52268/JPW/MSC/SKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/770,379
                                                                                                                                                                                                                                                                                                                                                                                                                                Score 35.4; DB 2; 1
Pred. No. 2.1;
0; Mismatches 46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: L185 Avenue of the Americas CITY: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 20, Application US/08770379 Patent No. 5849564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: White, John P.
REGISTRATION NUMBER: 28,678
REFERENCE/DOCKET NUMBER: 5234;
TELECHONE: (212) 278-0400
TELECHONE: (212) 278-0400
TELEFAX: (212) 391-0525
INFORMATION FOR SEQ ID NO: 20: SEQUENCE CHARACTERISTICS:
                                        REGISTRATION NUMBER: 28,678
REFERENCE/DOCKET NUMBER: 05
TELECOMMUNICATION INFORMATION:
                                                                                                         TELEPHONE: 212-278-0400
TELEFAX: 212-391-0525
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 3489 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                               TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                    2.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 32207 base pairs
      ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.69
Best Local Similarity 57.89
Matches 63; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic acid
                                                                                                                                                                                                                                                                                                                                             1..3489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New York
: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY: U. ZIP: 10036
                                                                                                                                                                                                                                                                                                                         ; NAME/KEY:
; LOCATION:
US-08-728-323A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-770-379-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE:
                                                                                                                                                                                                                                                                                                         FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2; Length 1303;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Chang, Yuan
APPLICANT: Bohenzky, Roy A.
APPLICANT: Bohenzky, Roy A.
APPLICANT: Belenan, Isidore S.
APPLICANT: Belenan, Isidore S.
APPLICANT: Moore, Patrick S.
TITLE OF INVENTION: Immediate Early Protein From Kaposi's
TITLE OF INVENTION: Sarcoma-Associated Herpesvirus, DNA
TITLE OF INVENTION: Bnooding Same And Uses Thereof
NUMBER OF SEQUENCES: 21
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATURS SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.6%; Score 35.4; DF 61.3%; Pred. No. 1.3; ative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1355 gtggaataaaataattattaaaaaaaaaaaa 1387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     579 ATTGTTTAGAATTTTGACTTGAAAAAAAA 547
MEDIUM TYPE: DISKETTE, 3.50 INCH
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: MICROSOFT WINDOWS 95
SOFTWARE: MICROSOFT WORD VERSION 7.0A
CURREMY APPLICATION DATA:
APPLICATION NUMBER: US/08/793,410
                                                                                                                                               CLASSIFICATION: 800
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: PCT/US95/10627
FILING DATE: AUGUST 25, 1995
ATTORNEY/AGENT INFORMATION:
NAME: CHRISTENBURY, LYNNE M.
REGISTAATION NUMBER: 30,971
REFERENCE/DOCKET NUMBER: CR-9567-A
TELECOMMUNICATION INFORMATION:
TELEPHONE: 302-992-5481
TELEPHONE: 302-992-5481
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E: Cooper & Dunham LLP
1185 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/728,3234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/08728323A Patent No. 5948676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: DNA (genomic)
HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                           ACENTER 1303 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 10036
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New York
: New York
RY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 57; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-728-323A-1/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-793-410-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: N
STATE:
```

ò g δ g

Gaps ;

```
; STRANDEDNESS: double
; TOPOLOGY: linear
; MOLECULE TYPE: DNA (genomic)
US-08-770-379-20
```

0; Gaps Ouery Match 2.6%; Score 35.4; DB 2; Length 32207; Best Local Similarity 57.8%; Pred. No. 6.3; Matches 63; Conservative 0; Mismatches 46; Indels 0;

ó ;

Search completed: February 28, 2002, 00:50:28 Job time: 5180 sec

```
GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
```

OM protein - protein search, using sw model

February 27, 2002, 16:59:34; Search time 13.23 Seconds (without alignments) 1202.762 Million cell updates/sec Run on:

US-08-816-011F-63 2294 1 MVIINRSNTYAVEQEAFPED Title: Perfect score: Sequence:

.....LTGGLWPVVIEHFVDKPSIL 434

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

100059 seqs, 36664827 residues Searched:

100059 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

SwissProt_39:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

O51750 borrelia bu	Q37370 acanthamoeb	033814 staphylococ	060779 homo sapien	046522 b cytochrom	P49219 xenopus lae	P39637 bacillus su		PO4371 trypanosoma		Q46916 escherichia	P25568 saccharomyc	
MVIN_BORBU	COX1_ACACA	LACP_STAXY	THT1_HUMAN	C24B_BOVIN	ML1C_XENLA	YWFA_BACSU	SGAT_ECOLI	COX1_TRYBB	CYOB_BUCAI	GUDP_ECOLI	YCD8_YEAST	
1	٦	٦	٦	٦	7	Н	-	Н	-	7	Н	
512	873	462	497	570	420	412	484	549	662	450	528	
4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.3	4.3	
103	102.5	102	101.5	101.5	101	100.5	100.5	100.5	100.5	99.5	99.5	
34	35	36	37	38	39	40	41	42	43	44	45	

ALIGNMENTS

043530; Q9UPEO;

```
13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75 IGSQLP--NASINVFNLFLIIAGPLIYRVFA------PVCFNIVN-----LTIILI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAAPLPERNSLSAIFNNVMTLCAMLPLLLFTYLNSFLHQRIPQSVRILGSLVAILLVFLI 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICG 177
                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVE---TWYSKEFMGSLT 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |::: |:: | :: | :: |
TAILVKVQLDALP-FFVITMIKIVLINSFGAILQGSLFGLAGLLPASYTAPIMSGOGLAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           243 GEQETKLDLISKGEEPRAGKEESGVSVSNSQPTNESHSIKAILKNISVLAFSVCFIFTIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         184 FFASVAMI-CAIASGSELSESAFGYFITACAVIILTIICYLGLPRLEFYRYYQQLKLEGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------KGMEIREKAETDRPSPSILWTT-----FTNCYGQLFNVWFCFAVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        303 IGMFPAVTVEVKSSIAG----SSTWERYFIPVSCFLTFNIFDWLGRSLTAVFMWPGKDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RYLKFAIILRALFIPFFFFCNYRVQTRAY-PVFFESTDIFVIGGIAMSFSHGYLSALAMG
                                                                                                                                                                                                                                                                                                                                                         (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                59;
                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 455;
                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                          EXTRACELLULAR (POTENTIAL).
POTENTIAL.
CYTOPLASMIC (POTENTIAL).
                                                                                                EXTRACELLULAR (POTENTIAL).
                                                                                                                                              EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                                                                POTENTIAL.
EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                POTENTIAL.
EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                             EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                          LINKED (GLCNAC. . .) (P. 9098E95E26515850 CRC64;
                                                                                                                       CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                       CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                        POTENTIAL. CYTOPLASMIC (POTENTIAL).
                                                                         CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                     CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | : | | : : : | | EPPKKVKPAEAETAGAIMAFFLCLGLALGAVFSFLFRAIV 455
                                                                                                                                                                                                                                                                                                                                                                                                                   ; Pred. No. 7.5e-17; 77; Mismatches 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 389 YTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                 Score 343.5; DB
InterPro; IPR002259; DER_Nucleoside_tran.
                                    ProDom; PD005103; DER_Nucleoside_tran; 1.
                                                Transmembrane; Transport; Glycoprotein
                                                                                                                                                             POTENTIAL
                                                                                                                                                                                                                                                                                                                                  POTENTIAL
                                                                                                                                                                                                                                                                                                                                                          N-LINKED
             Pfam; PF01733; Nucleoside_tran; 2. PRINTS; PR01130; DERENTRNSPRT.
                                                                                                                                                                                                                                                                                                                                                                     MW.
                                                                                                                                                                                                                                                                                                                                                                                                        15.0%;
24.3%;
                                                                                                                                                                                                                                                                                                                                                                    50088
                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                      47
455 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity.
                                                            0
                                                                                                                                  Query Match
Best Local Simi
Matches 112;
                                                                                                 DOMAIN
TRANSMEM
                                                                                                                                               DOMAIN
TRANSMEM
                                                                                                                                                                                 TRANSMEM
DOMAIN
                                                                                                                                                                                                                      DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                    DOMAIN
TRANSMEM
                                                                                                                                                                                                        TRANSMEM
                                                                                   TRANSMEM
                                                                                                                                                                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                   TRANSMEM
                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                       DOMAIN
                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       416
                                                                                                                                                                                                                                                                                                                                                                                                                                                     18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        358
  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

456 AA.

PRT;

STANDARD;

ENT2_HUMAN

ENT2_HUMAN

RESULT

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
             01-NOV-1997 (Rel. 35, Created)
20-AUG-2001 (Rel. 40, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
20-AUG-2001 (Rel. 40, Last annotation update)
EQUILIBRATIVE NUCLEOSIDE TRANSPORTER 2 (EQUILIBRATIVE
NITROBENZYLMERCAPTOPURINE RIBOSIDE-INSENSITIVE NUCLEOSIDE TRANSPORTER)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INDUCTION: BY PLATELET DERIVED GROWTH FACTOR (PDGF) AND FIBROBLAST GROWTH FACTOR (FGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biochem. Biophys. Res. Commun. 213:325-333(1995).

-!- FUNCTION: MEDIATES EQUILIBRATIVE TRANSPORT OF PURINE, PYRIMIDINE NUCLEOSIDES AND THE PURINE BASE HYPOXANTHINE. LESS SENSITIVE THAN SLC29A1 TO: INHIBITION BY NITROBENZYLTHIOINOSINE (NBMPR), DIPYRIDAMOLE, DILAZED AND DRAFLAZINE.

-!- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN. HNP36 ISOFORM IS A NUCLEOLAR INTEGRAL MEMBRANE PROTEIN.

-!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM (SHOWN HERE) AND A SHORT FORM/HNP36; SEEMS TO BE PRODUCED BY ALTERNATIVE SPLICING.
-!- TISSUE SPECIFICITY: EXPRESSED IN PLACENTA, BRAIN, HEART AND
                                                                                                                           (EQUILIBRATIVE NBMPR-INSENSITIVE NUCLEOSIDE TRANSPORTER) (NUCLEOSIDE TRANSPORTER, ELTTPEP) (36 KDA NUCLEOLAR PROTEIN HNP36) (HYDROPHOBIC NUCLEOLAR PROTEIN, 36 KDA) (DELAYED-EARLY RESPONSE PROTEIN 12). SLC29A2 OR ENTZ OR HNP36 OR DER12.
                                                                                                                                                                                                                                                                                                                                             MEDLINE-98148080; PubMed-9478986;
Crawford C.R., Patel D.H., Naeve C., Belt J.A.;
"Clohing of the human equilibrative, nitrobenzylmercaptopurine
riboside (NBMPR)-insensitive nucleoside transporter ei by functional
expression in a transport-deficient cell line.";
J. Blol. Chem. 273:5288-5293(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Young J.D., Baldwin S.A.; "Molecular cloning and characterization of a nitrobenzylthioinosine-insensitive (ei) equilibrative nucleoside transporter from human
                                                                                                                                                                                                                  Homo sapiens (Human).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Williams J.B., Lanahan A.A.;
"A mammalian delayed-early response gene encodes HNP36, a novel,
conserved nucleolar protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF0173; NULLECTION DERENTRISPRT.
PRINTS; PR01130; DERENTRISPRT.
ProDom; PD005103; DER_Nucleoside_tran; 1.
Nuclear protein; Transmembrane; Transport; Alternative splicing.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: BELONGS TO THE SLC29A FAMILY OF TRANSPORTERS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Griffiths M., Yao S.Y., Abidi F., Phillips S.E., Cass C.E.,
Young J.D., Baldwin S.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR002259; DER_Nucleoside_tran.
Pfam; PF01733; Nucleoside_tran; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TISSUE=Placenta;
MEDLINE=98060726; PubMed=9396714;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TISSUE=Heart;
MEDLINE=95367016; PubMed=7639753;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. (SHORT FORM).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; AF034102; AAB97834.1; -. EMBL; AF029358; AAC39526.1; -. EMBL; X86681; CAA60380.1; -. MIM; 602110; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Biochem. J. 328:739-743(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OVARIAN TISSUES
                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                    NCBI_TaxID=9606;
```

us-08-816-011f-63.rsp

```
between the Swiss Institute of Bioinformatics and the EMBL outstation -
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                      Usage by and for commercial
                                                                                                                                                                  RIBOSIDE (NBMPR) AND IS SODIUM-INDEPENDENT. SPECIFIC FOR NUCLECSIDES, BUT MAY ALSO TRANSPORT HYPOXANTHINE. MAY ALSO PLAY A ROLE IN THE EFFLUX OF INOSINE AND HYPOXANTHINE FROM MUSCLE CELLS DURING THE NET DEGRAPATION OF PURINE NUCLECTIDES THAT OCCURS DURING STRENUOUS EXERCISE AND/OR IN THE REUPTAKE OF THESE PURINES DURING THE RECOVERY PROCESS (BY SIMILARITY).
                                         "Molecular closing and functional characterization of nitrobenzylthioinosine (RBMPR)-sensitive (es) and NBMPR-insensitive (el) equilibrative nucleoside transporter proteins (rENT1 and rENT2) from rat tissues.";
J. Biol. Chem. 272:28423-28430(1997).
I FIOLTION: MEDIAFTES BOTH INFLUX AND EFFLUX OF NUCLEOSIDES ACROSS - FUNCTION: MEDIAFTES BOTH INFLUX AND EFFLUX OF NUCLEOSIDES ACROSS THE MEMBERANE (EQUILIBRATIVE TRANSPORTER). IT IS INSENSITIVE (EI) TO LOW CONCENTRATIONS OF THE INHIBITOR NITROBENZYLMERCAPTODURINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          70 MGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLEPTEDSM 129
                                                                                                                                                                                                                                                            SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.
MISCELLANEOUS: RESISTANT TO IDPYRIDAMOLE AND DILAZEP INHIBITION
MISCELANEOUS: RESISTANT TO LIPPRIDAMOLE AND DILAZEP INHIBITION
MISCELANGER CHEMOTHERAPEUTICS DRUGS
ŚIMILARITY: BELONGS TO THE SLC29A FAMILY OF TRANSPORTERS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED (GLCNAC. . .) (POTENTIAL).
N-LINKED (GLCNAC. . .) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 456;
                Yao S.Y.M., Ng A.M.L., Muzyka W.R., Griffiths M., Cass C.E.,
Baldwin S.A., Young J.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
EXTRACELLULAR (POTENTIAL).
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EXTRACELLULAR (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DA97C2C578E1EE9D CRC64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14.0%; Score 320.5; DB 1; 23.5%; Pred. No. 2.8e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76; Mismatches 200;
                                                                                                                                                                                                                                                                                                                                                                                                        modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProDom; PD005103; DER_Nucleoside_tran; 1. Transmembrane; Transport; Glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AF015305; AAB88050.1; -. InterPro; IPR002259; DER_Nucleoside_tran.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF01733; Nucleoside_tran; 1. PRINTS; PR01130; DERENTRNSPRT.
 MEDLINE=98019212; PubMed=9353301;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   50265 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          413
431
452
456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
   11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-AUG-2001 (Rel. 40, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
EQUILIBRATIVE NUCLEOSIDE TRANSPORTER 2 (EQUILIBRATIVE
NITROBENZYLMERCAPTOPURINE TRIOSIDE-INSENSITIVE NUCLEOSIDE TRANSPORTER)
(EQUILIBRATIVE NUMPR-INSENSITIVE NUCLEOSIDE TRANSPORTER)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                      63 TWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVL 122
                                                                                                                                                                                                                                                                                                                                                                                                                     ----NFNNWVTLLSQLPLLLFTLLNSFLYQCVPETVRILG----SLLAILLLFALTAAL 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                   123 EPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITV 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                345 RSLTSYFLWPDEDSRLLPLLVCLRFLFVPLFMLCHVPQRSR-LPILFPQDAYFITFMLLF 403
                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                           ---- VNYWFKPDGVE 62
                                                                                                                                                                                                                                                                                                                                           : | | : : | | : : | | AMLLSMASGV-----DAETSALGYFITPYVGILMSIVCYLSLPHLKFARYYLANKSSQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231 QAQELETKAELLQSDENGIPSSPQKVALTLDLDLEKEPESEPDEPQKPGKPSVFTVFQKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       291 WLTALCLVLVFTVTLSVFPAITAMVTSSTS-----PGKWSQFFNPICCFLLFNIMDWLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 318 SIVASKIHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               183 VKI-----GVTYFLNDEPKLVAIVYF---GISLVILLVCAIALFFITKQDFY---HYHHQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KGMEIREKA-------ETDRPSPSILWTTFTNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      258 YGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIG
                                                                                                                                     N-LINKED (GLCNAC. .) (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
N-LINKED (GLCNAC. .) (POTENTIAL).
                                                                                                                                                                                                                                                                                              85;
                                                                                                                                                                                                                                                               Length 456;
                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                               (IN ISOFORM HNP36).
                                                                                                                                                                                                                  AEF1B244397508E1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                                                                                                            200;
                                                                                                                                                                                                                                                                               1.1e - 15
                                                                                                                                                                                                                                                 14.2%; SCu. 22.9%; Pred. No. 1...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       456 AA
                                                                                                                                                                                                                                                                                                                         18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYY--
                                                                                                                                                                                                    NI)
                                                                                                        POTENTIAL. POTENTIAL.
                              POTENTIAL. POTENTIAL.
                                                             POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [1]
SEQUENCE FROM N.A.
STRAIN-SPRAGUE-DAWLEY; TISSUE-Jejunum;
 POTENTIAL
                                                                         POTENTIAL
                                                                                           POTENTIAL
                                                                                                                                                                                    MISSING
                                                                                                                                                                                                    U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Rel. 40, Created) (Rel. 40, Last seque
                                                                                                                                                                                                                  ММ,;
                                                                                                                                                                                                                  50172
                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSPORTER, EI-TYPE).
                                                                                                                                                                                                                  456 AA;
                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SLC29A2 OR ENT2.
Rattus norvegicu
99
1124
1162
1193
1291
324
3360
3366
432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20-AUG-2001
                                                                                                                                                                                                                                                                                            Matches 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENT2_RAT
054699;
                                                                                                                                                                                VARSPLIC
CONFLICT
                                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                              Query Match
                              FRANSMEM
                                                             TRANSMEM
                                                                           TRANSMEM
                                                                                                                                                     CARBOHYD
                                                                                                                                                                       CARBOHYD
                                                                                                                                                                                                                  SEQUENCE
                 TRANSMEM
                                             TRANSMEM
                                                                                           TRANSMEM
                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                                               Sest Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            232
                                                                                                                                                                                                                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENT2_RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

13;

Gaps

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN-SPRAGUE-DAWLEY: TISSUE-Jejunum;
MRDININE-98019212; PubMed-9353301;
Yao S.Y.M., Ng A.M.L., Muzyka W.R., Griffiths M., Cass C.E.,
Baldwin S.A., Young J.D.;
"Molecular cloning and functional characterization of
"itrobenzylthioinosine (NBMPR)-sensitive (es) and NBMPR-insensitive (ei) equilibrative nucleoside transporter proteins (rENT1 and rENT2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20-AUG-2001 (Rel. 40, Created)
20-AUG-2001 (Rel. 40, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
EQUILIBRATIVE NUCLEOSIDE TRANSPORTER 1 (EQUILIBRATIVE
NUTROBENZIMERCAPTOPURINE RIBOSIDE-SENSITIVE NUCLEOSIDE TRANSPORTER)
(EQUILIBRATIVE NUMPR-SENSITIVE NUCLEOSIDE TRANSPORTER)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BIOL. Chem. 272:28423-28430(1997).

FUNCTION: MEDIATES BOTH INFLUX AND EFFLUX OF NUCLEOSIDES ACROSS THE MEMBRANE (EQUILIBRATUVE TRANSPORTER). IT IS SENSITIVE (ES) TOW CONCENTRATIONS OF THE INHIBITOR NITROBENZYLMERCAPPOPURINE RIBOSIDE (NBMPR) AND IS SODIUM-INDEPENDENT. IT HAS A HIGHER AFFINITY FOR ADENOSINE. RESISTANT TO DIPYRIDAMOLE AND DILAZEP INHIBITION (ANTICANCER CHEWOTHERAPEUTICS DRUGS).

SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN.
                                                                                                                                                                                                                                                      AELLGADEKNGIPVSPQQAGPTLDLDPEKELELGLEEPQKPGKPSVFVVFRKIWLTALCL
                                                                                                                                            IGVTYFLNDEPKLVAIVYF --- GISLVILLVCAIAL -----FFITKQ -----
                                                                                                                                                                                SGV-----DPQTSALGYFITPCVGILLSIICYLSLPHLKFARYYLTKKPQAPVQELETK
                                                                                                                                                                                                                            224 - DFYHYHHQKGMEIR------EK----AETDRPSPSILWTTFTNCYGQLFNV
                                                                                                                                                                                                                                                                                                              WFCFAVTLTIFP-VMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASK
                                                                                                                                                                                                                                                                                                                                     297 VLVFTVTLSVFPAITAANTTSSNS-----PGKWSQFFNPICCFLLFNVMDWLGRSLTSY
                                                                                                                                                                                                                                                                                                                                                                                             IHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGY
                                                            SWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGL----LITVVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE SPECIFICITY: EXPRESSED IN JEJENUM, LIVER AND LUNG. PTM: GLYCOSYLATED. SIMILARITY: BELONGS TO THE SLC29A FAMILY OF TRANSPORTERS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               382 LSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      410 FVSLTMCLAPROVLPHEREVAGALMTFFLALGLSCG 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            456 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSPORTER, ES-TYPE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from rat tissues.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SLC29A1 OR ENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENT1_RAT
054698;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J. Biol
                   29
                                                                                                   123
                                                                                                                                          185
                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                     237
                                                                                                                                                                                                                                                                                                           265
                                                                                                                                                                                                                                                                                                                                                                                             324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                   8
                                                                                                                                          ò
                                                                                                                                                                                g
                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
```

```
116 LILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNI 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              397 ITFWAAFAFSNGYLASLCMCFGPKKVKPAEAETAGNIMSFFLCLGLALGAVLSFLLRALV 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGV-----ETWYSKEFMGS 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176 CGLLITVVKI-------GVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 289 WVL-----ALSVCFIFTVTIGLFP---AVTAEVESSIAGTSPWKNC-YFIPVACFLNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65 PSVSLPARSSLSAIFNNVMTLCAMLPLLIF - - TCLNSFLHQKVSQSLRILGSLLAILLVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LVTATLVKVQMDALS-FFIITMIKIVLINSFGAILQASLFGLAGVLPANYTAPIMSGQGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182 AGFFTSVAMICAVASGSKLSESAFGYFIT----ACAVV-----ILAILCYLALPWM---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WITFINCYGQLFNVWFCFAVILIIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  311 NLFAAIGSIVASKIHWP--TPRYLKFAIILRALFIPFFFFFCNYRVQTRAYPVFFESTDIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         338 NVFDWLGRSLTAICMWPGQDSRWLPVLVACRVVFIPLLMLCNVK-QHHYLPSLFKHDVWF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          229 EFYRHYLOLNLAGPAEQETKLDLISEGEEPRGGREESGVPGPNSLPANRNQSIKAILKSI
                                                                                                                                                                                                                                                                                                                                                                              N-LINKED (GLCNAC. ..) (POTENTIAL).
N-LINKED (GLCNAC. ..) (POTENTIAL).
N-LINKED (GLCNAC. ..) (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 191; Indels
                                                                                                                      EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                   EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                        -LINKED (GLCNAC. . .) (PC
A34CE92C20836D9B CRC64;
                                                                                                                                                                    EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                    EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                     EXTRACELLULAR (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                   EXTRACELLULAR (POTENTIAL)
                                                                                              CYTOPLASMIC (POTENTIAL).
                                                                                                                                            CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                            CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                            CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                            CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                           CYTOPLASMIC (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----KGMEIR-EKAETDRPSPSIL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 301; DB 1;
Pred. No. 6.2e-14;
       EMBL, AF015304; AAB88049.1; -.
InterPro; IPR002259; DER_Nucleoside_tran.
Pffam, PF01733; Vucleoside_tran; 2.
PRINTS; PR01130; DERENTRNSPRT.
ProDom; PD005103; DER_Nucleoside_tran; 1.
                                                                                                                                                                                                                                  POTENTIAL.
                                                                    Transmembrane; Transport; Glycoprotein.
INIT_MET 0 0 BY SIMILAR
DOMAIN 1 11 CYTOPLASMI
                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                  POTENTIAL
                                                                                                                                                                                                                                                                                                        POTENTIAL
                                                                                                                                                                                                          POTENTIAL
                                                                                                                                                                                                                                                          POTENTIAL
                                                                                                                                                                                                                                                                                 POTENTIAL
                                                                                                                                                                                                                                                                                                                                 POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84;
                                                                                                                                                                                                                                                                                                                                                                                                                   .
Μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      13.1%;
22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                  49885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                        3322
3322
3422
                                                                                                                                                                                                                                                                                          359
378
393
413
431
452
                                                                                                                                                                                                                                                                                                                                                                                         47
53
456 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match.
Best Local Similarity
                                                                                                           12
29
82
107
111
130
138
157
174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    224 DFYHYHHO --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              107;
                                                                                                        TRANSMEM
DOMAIN
                                                                                                                                             DOMAIN
TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                     DOMAIN
TRANSMEM
                                                                                                                                 TRANSMEM
                                                                                                                                                                                 FRANSMEM
                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                           CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                        TRANSMEM
                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                            DOMAIN
                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                    DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   251
q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

17;

```
GV-----DAQTSALGYFITPCVGILLSIVCYLSLPHLKFARYYLTEKLSQAPTQELETK 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-20408929; Pubmed-10827169;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; L05146; AAC04935.1; -. EEMBL; L05027; AAA'0393.1; -. PIR: S36712; S36712. SGD; S0000020; F0V26.
                                                                                                                                                                                                                                                                                                                           NUCLEOSIDE TRANSPORTER FUN26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transmembrane; Transport
                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genome 36:32-42(1993).
                       223 QDFYHYHHQKGMEIR--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CHARACTERIZATION.
                                                                                                                                                                                                                                                                                                                                       FUNZ6 OR YAL022C
                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=4932;
                                                                                                                                                                                                                                                           FU26_YEAST
P31381;
                                                                                                                                                                                                                                                  FU26_YEAST
55
                                                                                                                                                                                               qq
                    δ
                                             QQ
                                                                        ò
                                                                                               QQ
                                                                                                                        ò
                                                                                                                                                qq
                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12;
                                                                  01-NOV-1997 (Rel. 35, Last sequence update)
20-AGG-2001 (Rel. 40, Last annotation update)
EQUILIBRATIVE NUCLEOSIDE TRANSPORTER 2 (EQUILIBRATIVE
NITROBENZYLMERCAPPOPURINE INBOSIDE-INSENSITIVE NUCLEOSIDE TRANSPORTER)
(EQUILIBRATIVE NUPRR-INSENSITIVE NUCLEOSIDE TRANSPORTER) (NUCLEOLAR PROTEIN HNP36) (HYDROPHOBIC
NUCLEDLAR PROTEIN, 38 KDA) (DELAYED-EARLY RESPONSE PROTEIN 12).
SLC29A2 OR ENTZ OR HNP36 OR DER12.
                                                                                                                                                                                                                                                                                                                                                                                                               INDUCTION: BY PLATELET DERIVED GROWTH FACTOR (PDGF) AND FIBROBLAST GROWTH FACTOR (FGF).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----TK 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131 WFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKI---- 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5 WF-----INSFCAVLQGSLFGQLGTMPSTYSTLFLSGQGLAGIFAALAMLMSLAS 54
                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Musinae; Mus. NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                         ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG FORM AND A SHORT FORM/HNP36 (SHOWN HERE); SEEMS TO BE PRODUCED BY ALTERNATIVE
                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN=BALB/C; TISSUE=Fibroblast;
MEDLINE=95367016; PubMed=7639753;
Williams J.B., Lanahan A.A.;
"A mammalian delayed-early response gene encodes HNP36, a novel, conserved nucleolar protein.";
                                                                                                                                                                                                                                                                                                             FKINIS, TRULISO, CONTROLLESSIDE LTAN: 1.
PRODOM: PD005103; DER Nucleoside Ltan: 1.
Nuclear protein; Transmembrane; Transport; Alternative splicing.
TRANSMEM 2 22
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9.1%; Score 209.5; DB 1; Length 327; 22.4%; Pred. No. 8.5e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: BELONGS TO THE SLC29A FAMILY OF TRANSPORTERS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186 GVTYFLNDEPKLVAIVYF---GISLVILLVCAIAL-----FFI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5D2D3FF4BBD592B6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       134;
                                   AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MGD; MGI:1345278; Slc29a2.
InterPro; IPR002259; DER_Nucleoside_tran.
Pfam: PF0J733; Nucleoside_tran; 1.
PRINTS; PR0J130; DERENTRNSPRT.
                                  327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       49;
                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; X86682; CAA60381.1; -.
                                                                                                                                                                                                                                                                                                                                                                          ALTERNATIVE PRODUCTS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         36113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         303
327 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                   SPLICING
                                                         01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16;
                                  ENT2_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sest Local
                                             061672;
          RESULT 5
ENT2_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     selectivity in intracellular membranes.";
J. Biol. Chem. 275:25931-25938(2000).
-!- FUNCTION: HAS BROAD NUCLEOSIDE SELECTIVITY (URIDINE, ADEMOSINE AND
                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                                                                                                            218 TSYFLWPDEDSQQLLPLLVCLRFLFVPLFWLCHVPQHAR-LPIIFRQDAYFITFMLLFAV 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN=2280C / AB972;
MEDILINE=9320952;
DubMed=8458570;
Ouellette B.F.F., Clark M.W., Keng T., Storms R.K., Zhong W.W.,
Zeng B., Fortin N., Delaney S., Barton A.B., Kaback D.B., Bussey H.;
"Sequencing of chromosome I from Saccharomyces cerevisiae: analysis of a 32 kb region between the LTE1 and SP07 genes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vickers M.F., Yao S.Y., Baldwin S.A., Young J.D., Cass C.E.;
"Nucleoside transporter proteins of Saccharomyces cerevisiae.
Demonstration of a transporter (FUII) with high uridine selectivity
in plasma membranes and a transporter (FUN26) with broad nucleoside
---EKAETDRPSPSILWTTFTNCYGQLFNVWF
                                                                                       109 AELLOADEKNGVPISPOOASPTLDLDPEKEPEPEPEPOKPGKPSVFVVFRKIWLTALCLVL
                                                                                                                                                                               CFAVILIIFPVM--MTVTTRGDSG----FLNKIMSENDEIYTLLTSFLVFNLFAAIGSIV
                                                                                                                                                                                                                                                                  169 VFTVTLSVFPAITAMVTTSSNSPGKWGLFFNPI------CCFLLFNVMDWLGRSL
                                                                                                                                                                                                                                                                                                                                                         ASKIHWP---TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CYTIDINE) AND MOST LIKELY FUNCTIONS TO TRANSPORT NUCLEOSIDES ACROSS INTRACELLULAR MEMBRANES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL). SIMILARITY: BELONGS TO THE SLC29A FAMILY OF TRANSPORTERS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Saccharomyces cerevisiae (Baker's yeast).
Eukaryota; Fungi; Ascomycota; Saccharomycotina; Sacch
Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       378 SHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                517 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF01733; Nucleoside_tran; 1.
ProDom; PD005103; DER_Nucleoside_tran; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002259; DER_Nucleoside_tran.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
```

```
RESULT
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                             20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-JAL-1 / DSW 2661 / ATCC 43067;

STRAIN-JAL-1 / DSW 2661 / ATCC 43067;

MEDLINE-96337999; PubMed-86808087;

Bult C.J. White O., Olson G.J., Zhou L., Fleischmann R.D.,

Sutton G.G., Blake J.A., Fitzgerald L.M., Clayton R.A., Gocayne J.D.,

Kerlawage A.R., Dougherty B.A., Tomb J.F., Adams M.D., Reich C.I.,

Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,

Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.E., Nguyen D.,

Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C.,

Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M.,

Klank H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.,

"Complete genome sequence of the methanogenic archaeon, Methanococcus
                                                                                                                                                                                                                                                                                                               172 -PKWFNFWFIMMLVVISSMGTAMTQNGIMAIANVFGSEYSQGVWVGQAVAGVLFA 230
                                                                                                                                                                                                                128 SMSWFFWVTLGMATSI-NFSNGLYENSVYGVGGDFPHTYICALLIGNNICGLLITVVKIG 186
                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                 80 PNASINVFNLFL------IIAGPLIYR--VFAPVCFNIVNLTIILILVIVLEPTED 127
                                                                                                                                                                                                                                                                                                                                                                                                                  290 SLRSNEEEIRIVGRIDQMEDEDHRRTNGTRDDNDEGEELQLKVPFE------VLFAKL 341
                                                                                                                                                                                                                                                                                                                                                                                                                                         258 YGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                               342 KYLVLSIFTTFVVTL-VFPVFASAT-----YVTGLPLSNAQYIPLI--FTLWNLGDLYG 392
                                                                                                                                                                                                    23 NIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETW---YSKEFMGSLTIGSQL 79
                                                                                                                                                                                                                                                                                                                                                                    LAFIENSSVSTTGGILLYFFTTTLVVTIC-VVMFSVSKISRKVNENWNVEDGHITDVLLG
                                                                                                                                                                                                                                                                                                                                                                                            ------QDFYHYH-----HQKGMEIREKAETDRPSPSILWTTFTNC
                                                                                                                                                                            Indels 117;
                                                                                                                                                    Length 517;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Archaea; Euryarchaeota; Methanococcales; Methanococcaceae; Methanococcus.
                                                                                                                                                                                                                                                                  43C92A3E9A3D8D50 CRC64;
                                                                                                                                                                 69; Mismatches 131;
                                                                                                                                                      8.0%; Score 182.5; DB 1; 19.9%; Pred. No. 9.4e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       318 SIVASKIHWP-----TPRYLKFAIILRALFIPFF 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       393 RVIAD---WPMFRDQKFTPRKTFIYSLLRVAAIPLF 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel. 35, Created)
(Rel. 35, Last sequence update)
(Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                                                                                                             VTYFLNDEPKLVA - - IVYFGISLVILLVCAIALFFITK -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          432
         POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                           POTENTIAL
                                                                                                         POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                   58317 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL PROTEIN MJ0672
                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanococcus jannaschii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                          446
492
517 AA;
                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=2190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              jannaschii.";
                                                                                                                                                        Local Sim-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Y672_METJA
Q58086;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-AUG-2001
                                           TRANSMEM
TRANSMEM
                                                                                         TRANSMEM
TRANSMEM
SEQUENCE
TRANSMEM
                                                                                                                                                      Query Match
                                                                    TRANSMEM
                                                                                TRANSMEM
                     RANSMEM
                                 RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Y672_METJA
                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                             187
õ
                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             염
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        66 SKEFMG-----SLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62 GIFN-LKEALTYFAHPIIFLFLGGFMLAQALKNHNLDKFIAYKLLNYGKDFKTTCFLMFL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --YIGALLIGNNICGLLITVVKIGVTY---------FLNDEPKL 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 SAYFLSMWISNTSATLILLPIALGLLHKKTGKLRDFLLLGVAYSASIGGIATIIGSPPNA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----TSFLVFNLFAAIGSIVASKIHWPTPR 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        331 YLKFAIILRALFIPFFFFCNYRVQTRAYPVFFEST-----DIFVIGGIAMSFSHGYLSAL 385
                  SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
SIMILARITY: BELONGS TO THE NADC/P/PHO87 FAMILY OF TRANSPORTERS.
NADC SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4 SKEFIGLGIITASLIFGSSLPDIYKGI--VILIVAGCLWFFELLPLPUTSLAIPIMAVFL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 ETDRPSPSI-----LWTTFTNCYGQLENVWFCFAVTLTIFPVMMTVTTRGDSGFLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 198 VAIVY-----FGISLVILLVCAIALF----FITKQDFYHYHHQKGMEIREKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   232 ELSRNAYKLLVIFVLIASLM-IISDYLSEIFNVQY-FDSVIAIFAIILL------FVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     334 VLLFLVVTITILLT-NFISNTGLTGIIVPILFGVSLGIPKEILIL-AVGMSASCSFI--L
                                                                                                                                                                                                                                                                                                                                                                                                           Hypothetical protein; Transmembrane; Transport; Complete proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    282 NLVEVNDFKKIDWGTLILFGGALCLGGVIVKSGANTFLSEKLIAILGNL----TPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120 IVLEPTEDSMSWF----FWVTLG---MATSINFSN--GLYENSVYGVGGDFPHT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.8%; Score 134; DB 1; Length 432; 19.1%; Pred. No. 0.017;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A24BF9E64475CB74 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 0.01; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001898; Na_sulph_symp.
Pfam; PF00939; Na_sulph_symp; 2.
PROSITE; PS01271; NA_SULFATE; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   292 KIMSEND----EIYTLL-----
                                                                                                                                                                                                                                                                                         EMBL; U67514; AAB98666.1; -.
Science 273:1058-1073(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     144
176
216
2216
2261
286
311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    412
432 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
les 82; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  386 AMGYTPNVV 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PVGTPPNAI 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                          29
68
1124
1156
1156
224
1196
2261
231
3328
3328
                                                                                                                                                                                                                                                                                                                      MJ0672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loca
Matches
```

```
104
116
167
252
506 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YEAST PHO84.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  381 YLSAL 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       445 FLNLM 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=972;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YAEC_SCHPO
                     VARIANT
VARIANT
SEQUENCE
                                                                               Query Match
VARIANT
VARIANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            009852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YAEC_SCHPO
                                                                                                                                                                        78
                                                                                                                                                                                                                     135
                                                                                                                                                                                                                                                                   175
                                                                                                                                                                                                                                                                                         178
                                                                                                                                                                                                                                                                                                                217
                                                                                                                                                                                               29
                                                                                                                                                                                                                                                                                                                                                                                                         308
                                                                                                                                                                                                                                                                                                                                                                                                                                                      344
 FT
FT
SO
                                                                                                                                                                        δλ
                                                                                                                                                                                               Д
                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                   QQ
                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                  qq
                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its wise by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                        MEDLINE-95550630; Pubbed=7542800; Fleischmann R.D., Adams M.D., White O., Clayton R.A., Kirkness E.F., Ferlavage A.R., Bult C.J., Tomb J.-F., Dougherty B.A., Merrick J.M., McKenney K., Sutton G., Fitzhugh W., Fields C.A., Gocayne J.D., Scott J.D., Shirley R., Liu L.-I., Glodek A., Kellay J.M., Weidman J.F., Phillips C.A., Spriggs T., Hedblom E., Cotton M.D., Utterback T.R., Hanna M.C., Nguyen D.T., Saudek D.M., Brandon R.C., Fitchman J.L., Geoghagen N.S.M., Venter J.C., McDonald L.A., Small K.V., Fraser C.M., Smith H.O.,
                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN. INNER MEMBRANE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING-
                                                                                                                                                                                                                                                                                                                                                                      Sanders J.D., Cope L.D., Hansen E.J.; "Identification of a locus involved in the utilization of iron by Haemophilus influenzae.";
                                                                                                                                                                                                                                                                                                                                                                                                      Infect. Immun. 62:4515-4525(1994).
-!- FUNCTION: INVOLVED IN A PERIPLASMIC BINDING-PROTEIN-DEPENDENT
IRON(III) TRANSPORT SYSTEM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL).
SIMILARITY: WITH INTEGRAL MEMBRANE COMPONENTS OF OTHER BIP
PROTEIN-DEPENDENT TRANSPORT SYSTEMS. BELONGS TO THE CYSTW
                                                                                                    Bacteria; Proteobacteria; gamma subdivision; Pasteurellaceae;
                                                                                                                                                                                                                                                                                         "Whole-genome random sequencing and assembly of Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Inner membrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
POTENTIAL.
F -> L (IN STRAIN TN106).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Interpro; IPR000515; BPD_transp.
Pfam; PF00528; BPD_transp; 2.
PROSITE; PS00402; BPD_TRANSP_INN_MEMBR; FALSE_NEG.
                                                      20-AUG-2001 (Rel. 40, Last annotation update)
IRON(III)-TRANSPORT SYSTEM PERMEASE PROTEIN HITB
            506 AA
                                             Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL
            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; U32695; AAC21774.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                STRAIN-NTHI TN106;
MEDLINE=95012644; PubMed=7927717;
          HITB_HAEIN STANDARD;
P71338: 053440;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last seqi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transport; Iron transport;
                                                                                                                                                                                                                                                                                                  influenzae Rd.";
Science 269:496-512(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S72674; AAB32111.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29
77
77
1110
1136
1238
2238
2295
334
370
                                                                                        Haemophilus influenzae
                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Complete proteome.
TRANSMEM 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1116
174
218
275
314
350
379
428
480
                                                                                                                          NCBI_TaxID=727;
                                                                              HITB OR HI0098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IGR; HI0098
                                                                                                              Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRANSMEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VARIANT
 HITB HAEIN
```

```
27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216
                                                                                                                                                                                                                                                                                                                                                                                                                                              QLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLEPTEDSMSW---FFW 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----ISLGTFCAFLLER----YRFFGKAFFEVAMTLPLCIPAFVSGFTWISLTFRVEVFW 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VTLGMATSINF-----LIGNN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119 GTIGIMTLSSFPLAYLPVSAILKRLDRSLEEVSL-SLGKSPVYTFWYAISPQLKPAIGSS 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       I--LLIALHMLVEFGAVSILNYQTFTTAIFQEYEMSFNNSTAALLSAVLMAICILIVFGE 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : ||:| : : : || | : : : || 281 GV---PVIMLIYWLIVGTSLESAGDFSEFLSAFSNSFIISGLGALLIYWCALPLVWAAVR 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----PFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHG 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                398 TLRASLEQLSDQIEKVGQSLGRNPFYIF-----RTLTLPA------ILPGVAAAFALV 444
                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                26 YW---LVILVGFGVLLPWNMFITIAPEY----YVNYWFKPDGVETWYSKE-FMGSLTIGS 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ICGLLIT---VVKIGVTYFLNDEPKLVAI-----VYFG-----ISLVILLVCAI----A
                                                                                                                                                                                                                                                                                                                                                                LFFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCYGQ-----LFNVWFCFAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          236 IPFRGKOTL--YHSGKGV-----TRP-----YLVKTLSFGKOCLTFGFFSSIFILSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----LVFNLFAAIG----SIVASKIHWPTPRYLKFAIILRALFI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      338 YRSYLTIWIDRLPYLLHAVPGLVIALSLVYFSIHYANDLYQTFFVIIIAYFMLYLPMAQT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Niblett D., Harris D., Barrell B.G., Rajandream M.A., Walsh S.V., Submitted (OCT-1995) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: HIGH-AFPINITY TRANSPORTER FOR EXTERNAL INORGANIC PHOSPHATE (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -!- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (PROBABLE).
                                                                                                                                                                                                                                                                       167;
                                                                                                                                                                                                                 DB 1; Length 506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               271 TLTIFPVMM-----TVTTRGD----SGFLNK-IMSENDEIYTLLTSF---
                                                                                                                                                                                                                                                                          Indels
        G -> C (IN STRAIN TN106).
V -> G (IN STRAIN TN106).
S -> F (IN STRAIN TN106).
T -> M (IN STRAIN TN106).
ADA28861C1481A1D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota, Fungi, Ascomycota, Schizosaccharomycetes, Schizosaccharomycetales, Schizosaccharomycetaceae, Schizosaccharomyces. Schizosaccharomyces. NCBI_TaxID-4896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
02-AUG-2001 (Rel. 40, Last annotation update)
PUTATIVE INORGANIC PHOSPHATE TRANSPORTER C23D3.12.
SPAC23D3.12.
                                                                                                                                                                                                                                                                       69; Mismatches 144;
                                                                                                                                                                                                                                         0.088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                559 AA.
                                                                                                                                                                                                              5.4%; Score 124.5; 21.6%; Pred. No. 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schizosaccharomyces pombe (Fission yeast).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                    SE
                                                                                                                             ..
MW
104
116
167
252
56546 M
                                                                                                                                                                                                                                            Best Local Similarity 21.6
Matches 105; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
```

```
d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@ib-sib.ch).
                                                                                                                                                                                                                                                                                                          25;
                                                                                                                                                                                                                                                                                                                                                                                       343
                                                                                                                                                                                                                                                                                                                                                                                                                                          PTPLGKMMWIFAWRWL-LGL------GIGGDYPWSATITSERSLLSRRGT 185
                                                                                                                                                                                                                                                                                                                                                                         74 TIGSQLPNASINVFNLFLIIAGPLIYR------VFAPVCFNIVNLTIILLVIVLE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LKAIGFSSGKNEYHTLMRG-AIGNLIIAIAGYVPG--YWFTVFLVEKLGRKWIQLQGLFI 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                419 TGLMFA-----ILAGSWDTISTGGRFACFVIAQFFSNFGPNATTFLYPAEVFPAR 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          344 PFFFFCNYRVQTRAYPVFFESTDIFVIGG-----IAMSFSHGYLSALAMGYTPNVVPSH 397
                                                                                                                                                                                                                                                                                                          Indels 153; Gaps
                                                                                                                                                                                                                                                                                                                                YMLVI-----LVGFG----VLLPWNMFI--TIAPEYYVNYWFKPDGVETWYSKEFMGSL 73
                                                                                                                                                                                                                                                                                                                                             Hypothetical protein; Phosphate transport; Transport; Transmembrane;
Glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          212 VCAI-----HYHHQKGMEIREKAET--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                LLI------KLVAI--VYFGILITVVKIGVTYFLNDEP------KLVAI--VYFGISLVILL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LLS1VFSFQGFGTLAGAIVTIILLACF - - - EKPLNQRGEYTKLEGVWRLQMGLALVPAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LVLIPRLTMKESKSYEQSKALNKYTDNDTYIADDDEPKKDNQNVVEEKQINLTTSSDSHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----DRPSPSILWTTFTNCYGQLFNVWFCF-----AVTLTIFPVMMTVTTRGDSGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302 TSTEDFGDKRASTVPTSENTSGFIEYFSQWHHFKHLLATAVSWFLLDIAFYGVNLNQSVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LNKI--MSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWPT----PRYLKFAIILRALFI
                                                                                                                                                                                                                                                                                                                                                                                                                     PTE-DSMSWFF---WVTLGMATSINFSNGLYENSVYGVGDFPHTYI------GA
                                                                                                                                                                                                                                           LINKED (GLCNAC. . .) (POTENTIAL)
                                                                                                                                                                                                                                                                                      Length 559;
                                                                                                                                                                                                                                                                                              ; Pred. No. 0.29; 73; Mismatches 175;
                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P47344; Q49231; Q49509;
01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
                                                                                                                                                                                                                                                                                    5.1%; Score 117.5; 20.1%; Pred. No. 0.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                477
                                                                                                                                                                          POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                InterPro; IPR003662; sub_trnsportr.
Pfam; PF00083; sugar_tr; 1.
PR001TE; PS00116; SUGAR_TRANSPORT_1; 1.
PROSITE; PS00217; SUGAR_TRANSPORT_2; 1.
                                                                                                                                                                   POTENTIAL
                                                                                                                                                                                                                                             N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    398 YSRFAAQLSVCTLMVGLLTGGL 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          469 VRGTAHGLSAALGKCGAILASL 490
                                                                                                                                                                                                                                                       Ψ.
                                                                                       EMBL; 264354; CAA91247.1; -.
                                                                                                                                                                                                                                                       62316
                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                  66
209
356
402
430
495
518
                                                                                                                                                                46
189
336
410
471
498
559
AA;
                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                     Query Match
Best Local Simi
Matches 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Y098_MYCGE
ID Y098_MYCGE
                                                                                                                                                                           TRANSMEM
TRANSMEM
                                                                                                                                                                                                TRANSMEM
TRANSMEM
                                                                                                                                                                   TRANSMEM
                                                                                                                                                                                                                       FRANSMEM
                                                                                                                                                                                                                                 PRANSMEM
                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                 26
                                                                                                                                                                                                                                                                                                                                                                                                                     124
                                                                                                                                                                                                                                                                                                                                                                                                                                          143
                                                                                                                                                                                                                                                                                                                                                                                                                                                               169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    362
                                                                                                                                                                                                                                                                                                                                                                                               92
  ò
                                                                                                                                                                                                                                                                                                                                                     염
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4 2 4 B
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/or send an email to license@ib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20;
                                                                                                                                                                                    SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-96026346; PubMed-7569993;
MEDLINE-96026346; PubMed-7569993;
Fraser C.M., Gocayne J.D., White O., Adams M.D., Clayton R.A.,
Fleischmann R.D., Bult C.J., Kerlayage A.R., Sutton G., Kelley J.M.,
Fleischmann J.L., Weidman J.F., Small K.V., Sandusky M., Fuhrmann J.L.,
Nguyen D.T., Utterback T.R., Saudek D.M., Phillips C.A., Merrick J.M.,
Tomb J.-F., Dougherty B.A., Bott K.F., Hu P.-C., Lucier T.S.,
Peterson S.N., Smith H.O., Hutchison C.A. III, Venter J.C.;
"The minimal gene complement of Mycoplasma genitalium.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74 TIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLLVIVLEPTEDSMSWFF 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DMQSLIMPNVI -> EYAKLNYAQCY (IN REF. 2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22 YNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEF------MGSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20 YFAVVFLIIIV--------YLFFKNILFLFFKRYPKNTPKIGVSNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59 TIIAMIIAVAVSVVLVLMALAGGLTAALFRGYPGFRVTLELILVKISGL-----LF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134 WVTLGM--ATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLL-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. Bacteriol, 175:7918-7930(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=ATCC 33530 / G-37;
MEDLINE-94075230; PubMed-8253680;
Peterson S.N., Hu P.-C., Bott K.F., Hutchison C.A. III;
"A survey of the Mycoplasma genitalium genome by using random
                                                                     Mycoplasma genitalium.
Bacteria; Firmicutes; Bacillus/Clostridium group; Mollicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 477;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3FCCDD95A2C35684 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          F -> V (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Complete
20-AUG-2001 (Rel. 40, Last annotation update)
HYPOTHETICAL PROTEIN MG098.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.9%; Score 113.5; DF 19.7%; Pred. No. 0.47; Live 70; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 46-155 AND 278-382 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR003837; Glu-tRNAGln.
Pfam; PF02686; Glu-tRNAGln; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54045 MW;
                                                                                                                      Mycoplasmataceae; Mycoplasma.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; U39690; AAC71316.1; -. EMBL; U01701; AAB01013.1; -. EMBL; U01782; AAD12771.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
128
151
191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      477 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                            NCBI_TaxID=2097;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
108
131
131
171
228
228
326
87
87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mac.
Local Sim.
89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequencing.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIGR; MG098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
```

```
62; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE=Adrenal gland;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens (Human).
             Query Match
Best Local Similarity
Matches 62; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9606
                                                                                                                                                                                                                      CYGQL---
                                                                                                                                                                                                                                                                                                                                                                                                                    HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                     T9S3_HUMAN
                                                                                                                                                                   206
                                                                                                                                                                                                                                                                       298
                                                                                                                                                                                                                                                                                                495
                                                                                                                                                                                                                                                                                                                                                    542
                                                                                                                                                                                                                     257
                                                                                                                                                                                                                                                                                                                                                                                                                    T983
                                                                                      g
                                                                                                                ŏ
                                                                                                                                         g
                                                                                                                                                                   δλ
                                                                                                                                                                                          QQ
                                                                                                                                                                                                                     δŏ
                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                               pp
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                      164 KTLSDFAYLVLSVGMVFASFLVTQFFVISVTQNLSAFQSNDQIVLRFNASPLNFSISLQR 223
                                                                           281
                                                                                                  257 CYGOLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAI 316
                                                                                                                                                     371
                                                                                                                                                                              305 IPIFDTQ---TTGQTYDFWLLVRLLFAPLIFLLDIIV---IYPILLLLTPIMLKGFKTVA 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Warner S.J., Lomax M.I.; "Evolution of the TM9 super family of membrane spanning proteins."; Submitted (MAY-2000) to the EMBL/GenBank/DDBJ databases.
                                                                LVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTN
                                                                                                                          282 WFYLILINV-----TSLLMINI--AF
                                                                                                                                                    GSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIG-----
                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata; Euteleostomi;
Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FRANSMEMBRANE 9 SUPERFAMILY PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL.

N-LINKED (GLCNAC. .) (POTENTIAL).

N-LINKED (GLCNAC. .) (POTENTIAL).

22FD4F8588FECZAE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Strausberg R.; submitted (MAR-2001) to the EMBL/GenBank/DDBJ databases.
-!- SUBMILTED LOCATION: INTEGRAL BENBRANE PROTEIN (PROBABLE).
-!- SIMILARITY: BELONGS TO THE NONASPANIN (TM9SF) FAMILY.
                                                                                                                                                                                                                                                                                                                       20-AUG-2001 (Rel. 40, Created)
20-AUG-2001 (Rel. 40, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
TRANSMEMBRANE 9 SUPERFAMILY PROTEIN MEMBER 3 PRECURSOR.
                                                                                                                                                                                                                                                                                                587 AA.
                                                                                                                                                                                                       ----GIAMSFSHGYLSALAMGYTPNVVPSH 397
                                                                                                                                                                                                                     359 SETQTKGIKKSFSD--MQSLIM---PNVI-SH 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEMBER 3.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POTENTIAL. POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; AF269151; AAF98160.1; -.
EMBL; BC004799; AAH04799.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                PRT;
----ITVVKIG-----VTYFL---
                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [2]
SEQUENCE OF 79-587 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67544
                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26
587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          346
378
407
467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Signal; Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                        Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      549
172
417
587 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                             [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  222
292
326
326
358
447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27
                                                                                                                                                                                                                                                                                               T9S3_MOUSE
09ET30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SIGNAL
                                                                                                                                                                                                                                                                                                                                                                            TM9SF3.
                                                                                                                                                                                                                                                                                    T9S3_MOUSE
                                                                                                                                                                                                       372
                                                                                                                                                    317
                                                 197
                                                                                                                                                                                                                                                                     RESULT
                      qq
                                                                                                 δ
                                                                                                                         qq
                                                                                                                                                                           Q
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                            ò
                                                 δλ
                                                                          q
                                                                                                                                                    ò
```

```
14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sugasawa T., Lenzen G., Simon S., Hidaka J., Cahen A., Guillaume J.L., Camoin L., Nahmias C., Strosberg A.D.; The iodocyanopindolol and SM-11044 binding protein (SMBP) belongs to the emerging family of MP70 multispanning membrane proteins."; Submitted (DEC-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                               96 PLIYRVFAPVCFNIVNLTIILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVY 155
                                                                                                                                             156 GVGGD---FPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVY-----FGI 205
                                                                                                                                                                                 346 ARQGGRRWIKQMFIGAFLIPAMVC-----GTAFFIN----FIAIYYHASRAIPFG- 391
                                                                                                                                                                                                                     SLVILLVCAIALFFITKQDFY-----HYHHQKGMEIREKAETDRPSPSILW---TTFTN 256
                                                                                                                                                                                                                                                        392 --TMVAVCCICFFVILPLNLVGTILGRNLSGQPNFPCRVNA-VPRPIPEKKWFMEPAVIV 448
                                                                                                                                                                                                                                                                                                                                                                   DEIYTLLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRA 357
                                                                                                                                                                                                                                                                                                                                                                                            --CVTIVCTYFLLN------AEDYRWQWTSFLSAA--STAIYVYMYSFYYFFKTKM 541
                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A. Warner S.J., Lomax M.I.; Warner S.J., Lomax M.I.; Brollution of the TM9 super family of membrane spanning proteins."; Submitted (MAY-2000) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                              ---FNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Mammalia, Eutheria, Primates, Catarrhini, Hominidae, Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Han
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9HD45; Q9UHW8; Q9NWL8; Q9P0G9; 20-AUG-2001 (Rel. 40, Created) 20-AUG-2001 (Rel. 40, Last sequence update) 20-AUG-2001 (Rel. 40, Last annotation update) TRANSMEMBRANE 9 SUPERFAMILY PROTEIN MEMBER 3 PRECURSOR (SM-11044
                                      103;
 Length 587;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Υ.,
                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gu Y., Peng Y., Li Y., Fu S., Gu J., Gu W., Jiang C., Yu Wang Y., Chen Z., Fu G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (JUN-1999) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                              449 CLGGILPFGSIFIEMYFIFTSFWAYKIYYVYGFMMLVLVILCIVTV---
                                                                                                                                                                                                                                                                                                                                                                                                                                           358 YPVFFESTDIFVIGGIAMSFSHGYLSAL-----AMGY 389
 DB 1;
                                      49; Mismatches 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | :| | XGLF-----OTSFYFGYMAVFSTALGIMCGAIGY
4.9%; Score 113.5; Di
18.2%; Pred. No. 0.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           589 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BINDING PROTEIN) (EP70-P-ISO). TM9SF3 OR SMBP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 12-589 FROM N.A. TISSUE=Skeletal muscle;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----FKPDGVETWYSKEFMGSLTIGSQLPNA----SINVFNLFLIIAGPLIYRVFA 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----ILVIVLEPTED 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MGGLFNAMP---FTTTSLIIGSLALTGIPFLTGFYSKDLIIETANTSYTNAW---ALLMT 410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          411 LIATSLTAVYSTRIIFFALLGQPRFLPLTSINENNPFLINSIKRLLIGSIFA--GFFISN 468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     323 KIHWPT-----PRYLKFAIILRALFIPFFFFC-----NYRVQTRAYPVFFEST 365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     71 TLKLSLSFKLD----YFSMIF------VPVALFVTWSIMEFSLWYMHSDPYITRFFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17 IMLSIFUTY--KNSTFPHHVKNTISYAFIT----SLIPTMMFIHSGQETIISNWHWMTMQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 118 YLLTFLITMMILVTANNLFQLFIGWEGVGIMSFLLIGWWYGRTDANTAALQAILYNRIGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151 -----ENSVYGVGDFPHTYIGALLIGN-----NIC-GLLITVVKIGVTYFLNDEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238 PTPVSALLHSSTMVVAGVFLLIRFHPLMENNKTIQSLTLCLGAITTLFTAICALTQNDIK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  274 IFPVMMTV--TTR-----GDSGF--LNKIMSENDEIYTLLTSFLVFNLFAAIGSIVAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 VIINRSNTYAVEQEAFPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYW-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------LGM---ATSINFSNGLY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           178 IGFIMAMAWFLFNTNTWDLQQIFMLDPNLTNLPLLGLLLAATGKSAQFGLHPWLPSAMEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196 KLVA------IVYFGIS---LVILLVCAIALF----FITKQDFYHYHQKGMEIRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               239 KAETDRPSPSILWTTFTNCYGQL--------FNVWFCFAVTLT
                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
                                                                                                                                                                                                                                                          caballus: extensive heteroplasmy of the control region.";
Gene 148:357-362(1994).
-!- CATALYTIC ACTIVITY: NADH + UBIQUINONE = NAD(+) + UBIQUINOL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 1; Length 604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181; Indels
                                                                                                                                                                                           MEDLINE=95047450; PubMed=7958969;
Xu X., Arnason U.;
"The complete mitochondrial DNA sequence of the horse, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Oxidoreductase; NAD; Ubiquinone; Mitochondrion.
SEQUENCE 604 AA; 68056 MW; 5E794F1730235C10 CRC64;
  NADH-UBIQUINONE OXIDOREDUCTASE CHAIN 5 (EC 1.6.5.3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.9%; Score 113.5; DI
19.9%; Pred. No. 0.59;
ive 74; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Interpro; IPR003916; NADHub_oxdrdctse5.
InterPro; IPR001750; Oxidored_q1.
InterPro; IPR001516; Oxidored_q1.N.
Pfam; PF00361; oxidored_q1, 1.
Pfam; PF00662; oxidored_q1, 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     128 ----SMSWFFWVT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104 PVCFNIVNLTIIL------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity 19.9%
Matches 122; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; X79547; CAA56089.1;
                                            Equus caballus (Horse).
                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                               NCBI_TaxID=9796;
                                                                   Mitochondrion.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       357 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26
    П
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLIYRVFAPVCFNIVNLTIILLLVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVY 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    348 ARQGGRRWIKQMFIGAFLIPAMVC-----GTAFFIN----FIAIYYHASRAIPFG- 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              206 SLVILLVCAIALFFITKQDFY-----HYHHQKGMEIREKAETDRPSPSILW---TTFTN 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEIYTLLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRA 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            497 -- CVTIVCTYFLLN------AEDYRWQWTSFLSAA--STAIYVYMYSFYYYFFKTKM 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels 103; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --TMVAVCCICFFVILPLNLVGTILGRNLSGQPNFPCRVNA-VPRPIPEKKWFMEPAVIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156 GVGGD---FPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVALVY-----FGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CYGQL------FNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSEN
                                                                                                                                                                                                                                                                                                                                               TRANSMEMBRANE 9 SUPERFAMILY PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . .) (POTENTIAL) . .) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NILIVLFS (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 589;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KYLDPSFFQ -> NILIVLFS (IN

M -> T (IN REF. 4).

F -> S (IN REF. 4).

E673D547A35BC4A7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
POTENTIAL.
N-LINKED (GLCNAC. ..)
MISSING (IN REF. 2).
M -> I (IN REF. 1).
KYLDPSFFQ -> NILIVLFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         358 YPVFFESTDIFVIGGIAMSFSHGYLSAL-----AMGY 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 544 YGLF------QTSFYFGYMAVFSTALGIMCGAIGY 572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              49; Mismatches 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (Rel. 33, Created)
(Rel. 33, Last sequence update)
(Rel. 35, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. 4.9%; Score 113.5; Dl Similarity 18.2%; Pred. No. 0.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL.
POTENTIAL.
POTENTIAL.
IN POSITIONS 184; 198; 370 AND 446.
                                                                                                                                                                                                                                                                                                                                                                                          POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
                                                                                                                                                                                                                                    EMBL; AF160213; AAF67014.1; ALT_FRAME.
EMBL; AF116347; AAF21983.1; -.
EMBL; AK000756; BAA91362.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                      MEMBER 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MM;
                                                                                                                                                                                                                EMBL; AF269150; AAF98159.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                     Signal; Transmembrane
SIGNAL 1 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               547
589 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             551
174
419
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1996
01-FEB-1996
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NU5M_HORSE
P48656;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local 3
                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CONFLICT
                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NU5M_HORSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    867
```

Matches

g ò g ò g ò g ò g ò g

394

33;

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                         Noguchi N., Aoki T., Sasatsu M., Kono M., Shishido K., Ando T.; "Defermination of the complete nucleotide sequence of pNS1, a staphylococcal tetracycline-resistance plasmid propagated in Bacillus subtilis.";
                 EFFLUX. THIS IS AN ENERGY-DEPENDENT PROCESS THAT DECREASES THE ACCUMLLATION OF THE ANTIBIOTIC IN WHOLE CELLS. THIS PROTEIN EUNCTIONS AS A METAL-TETRACYCLINE/H+ ANTIPORTER. SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN. SIMILARITY: BELONGS TO THE MAJOR FACILITATOR FAMILY (ALSO KNOWN AS THE DRUG RESISTANCE TRANSLOCASE FAMILY).
                                                                                                                                                                                                                                                                                                                                                                                                                         SUBTILIS.';
FEMS Microbiol. Lett. 37:283-288(1986).
-!- FUNCTION: RESISTANCE TO TETRACYCLINE BY AN ACTIVE TETRACYCLINE
-!- FUNCTION: RESISTANCE TO TETRACYCLINE BY AN ACTIVE TETRACYCLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Transmembrane; Transport; Symport; Plasmid.
DIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLW-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FE53C5535372B41 CRC64;
                                                                                                                                                                                                                                                                                 Plasmid pNS1.
Bacteria; Firmicutes; Bacillus/Clostridium group;
Bacillus/Staphylococcus group; Bacillus.
                                                                                                                                                                                          (Rel. 13, Created)
(Rel. 13, Last sequence update)
(Rel. 30, Last annotation update)
                                                                                                                                                               459 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL.
POTENTIAL.
POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL
                                                                                                                                                               PRT;
                                                                                                                                                                                                                         01-OCT-1994 (Rel. 30, Last annot
TETRACYCLINE RESISTANCE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR001411; TCR_TetB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; M16217; AAA19179.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PR01036; TCRTETB
                                                                                                                                                              STANDARD;
                                                         421 PVVIEHFVDKPSIL 434
                                                                                     561 PKSISQFQMKTSIL 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Antibiotic resistance;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S42238.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459 AA;
                                                                                                                                                                                                                                                                    Bacillus subtilis.
                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=1423;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111
140
165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S42238;
                                                                                                                                                                                          01-JAN-1990
01-JAN-1990
                                                                                                                                                              TCR2_BACSU
P14512;
                 .: -
NYF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSMEM
                                                                                                                                                 TCR2_BACSU
366
                           516
                                                                                                                                  RESULT
                                                                                                                                                                               g
                                                         ŏ
                                                                                  qq
ŏ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eaton T.J., Shearman C.A., Gasson M.J.; "Cloning and sequence analysis of the dnaK gene region of Lactococcus lactis subsp. lactis."; lactis subsp. lactis."; J. Gen. Microbiol. 139:3253-3263(1993).
                                        82 ASINVFNL-FLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLEPTEDSMSWFFWVTLGMA 140
                                                                                                                                                        -----RLVQGVGSAAFPSLIMVVVARNITRKKQGKAFGFIGSIVALGEGLGPSI 158
                                                                                                                                                                                                                                    159 GGIIAHYIHWSYLLILEPMITIVTI -----PFLIKVMVPGKSTKNTLDIVGIVLMSI 209
                                                                                                                                                                                                                                                                          273
                                                                                                                                                                                                                                                                                                               231
                                                                                                                                                                                                                                                                                                                                                        332
                                                                                                                                                                                                                                                                                                                                                                                              289
                                                                                                                                                                                                                                                                                                                                                                                                                                   385
                                                                                                                                                                                                                                                                                                                                                                                                                                                         290 NVATIGNSVIFPGTMSVIVFGYFGGFLVDRKG-----SLFVFILGSLSIS-----ISFL 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |||| ::::||
KYNFEFYIIIL------FITILATFPFYRGNFHAGNDFAFNYARVMSTISALKDG 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
HYPOTHETICAL 70.0 KDA PROTEIN IN DNAM 3'REGION (ORF4).
Lactococcus lactis (subsp. cremoris) (Streptococcus cremoris).
Bacteria; Firmicutes; Bacillus/Clostridium group; Streptococcaceae;
13 YSVLFWLCILSFFSVLN--EMVLNVSLPDIANHFNTTPGITNWVNTAYMLTFSIGTAVYG
                                                                           71 KLSDYINIKKLLIIG-----ISLSCLGSLIAFI----GHNHFFILIFG--
                                                                                                                                                                                                                                                                                                                                                        274 IFPVMMTVTTRGDSGFLNKIMSEN-DEIYTLLTSFLVFNLFAAIGSIVASKIHWPTPRYL
                                                                                                                                                                                                                                                                                                                                                                                            232 FFVIFIKHISRVSNPFINPKLGKNIPFMLGLFSGGLIFSIVAGFISMVPYMM--KTIYHV
                                                                                                                                                                                                                                                                                                                                                                                                                                   333 KFAIILRALFIP-----FFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSAL
                                                                                                                                                                                                                                                                          214 AIALFFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLT
                                                                                                                    141 TSINFSNGLYENSVYGVG-GDFPHT-----IGNNI
                                                                                                                                                                                                                                                                                                                 -----ELIPININALETI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 614;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B1146136D09B89D9 CRC64;
                                                                                                                                                                                               CGL--------LITVVKIGVTYFLNDEPKLVAIVYFGISL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21 KYNIVYWLVILVGFGVLLPWNMFITIA---PEYYVNY---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.9%; Score 113; DB 119.3%; Pred. No. 0.65; iive 66; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     614 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                386 AMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGL 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIAF -----FVEFSMWLT -- TFMFIFVMGGL 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=94172317; PubMed=8126443;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        614 AA; 69869 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; X76642; CAA54090.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
nes 98; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIN=MG1363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lactococcus.
NCBI_TaxID=1359;
                                                                                                                                                                                                                                                                                                               210 SIICEML --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YDNK_LACLC
P42377;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 15
YDNK_LACLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loc
Matches
                                                                                                                                                        110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                           qq
                                                                                                                                                      qq
                                                                                                                                                                                                                                    QΩ
                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ó
                                                                                                                  δy
                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
```

20;

Gaps

22 YNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEFMGSLTIGSQLPN 81

18.1%; Pred. No. 0.49; Live 79; Mismatches 133; Indels 160;

Conservative

Query Match Best Local Similarity Matches 82; Conserv

82;

= = = :::

δλ

4.9%; Score 113; DB 1; Length 459; [8.1%; Pred. No. 0.49;

WFKDDGVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIACPLIYRVFAPVC 106	FNIVNLTIILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYI 166 : :	GALLIGNN		-YHHQKGMEIREKAETDRPSPSILMTTFTNC-YGQLFNVWFCFAVT 271 	LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVAS 322 : : : : : LVLMQLPIFPWKLESIFTIVQDPARFSTLEGLFSALSLVLILPILLD 388 `	KIHWPTPRYLKEAIILRALEIPFFFFCNYRVQTRAYDVFFESTDIF 368 	VIGGIAMSFSHGYLSALAMGYTPNVVDSH 397 	
55 65 0V	107 FP	167 GP 172 FV	189 YE	228 - Y	272 LT 342 LV	323 KI 11 389 KI	369 VI 	
oy ob	Qy Db	Oy Db	Qy Db	Qy Db	Qy Db	Qy Db	Oy Dp	

Search completed: February 27, 2002, 17:02:49 Job time: 195 sec

GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.

protein search, using sw model OM protein ; Search time 17.49 Seconds February 27, 2002, 16:56:54 Run on:

(without alignments)
1890.209 Million cell updates/sec

US-08-816-011F-63 2294 1 MVIINRSNTYAVEQEAFPRD. Perfect score:

......LTGGLWPVVIEHFVDKPSIL Sequence:

434

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

219241 seqs, 76174552 residues Searched:

Total number of hits satisfying chosen parameters:

seq length: 0 seq length: 2000000000 Minimum DB s Maximum DB s

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

pir1:* pir2:* pir3:* PIR_68:* Database

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	hypothetical prote	hypothetical prote	_	٦		_	36K hydrophobic nu	36k hydrophobic nu	hypothetical prote		hypothetical prote			Na+ transporter -	hypothetical prote	transporter BH2694	hypothetical prote	iron (III) ABC tra	inorganic phosphat	probable transport	DNA damage-inducib	eggshell protein p	NADH dehydrogenase	tetracyclin resist	hypothetical prote	hypothetical prote	Na+/H+-exchanging	Na+/H+-exchanging	proteinase-activat
SUMMARIES	ID	T16080	T28006	T23528	T23247	T01489	C86156	JC4196	JC4195	T21887	\$36712	T22164	D85064	E85064	H64383	G96641	F83986	T21217	D64048	S62503	B83601	C75053	H64210	T11867	S42238	S40085	E69143	A42111	B64459	S66518
	DB	7	7	7	7	7	7	7	7	7	~	7	7	7	7	7	7	7		7	~	7	7	7	7	7	7	7	7	~
	Length	434	461	450	800	428	408	326	327	513	517	143	418	418	432	382	418	674	206	559	461	449	477	604	459	614	694	383	388	397
dР	Query Match	98.7	31.2	30.8	25.0	13.7	10.9	9.3		9.8				•		5.6			5.1			5.0			4.9	•	4.9	4.9	4.9	4.9
	Score	2265	716.5	706.5	574.5	313.5	249.5	214	209.5	196.5	182.5	180	144	138.5	134	128.5	126	125.5	117.5	117.5	115	114.5	113.5	113.5	113	113	112.5	112	111.5	111.5
	Result No.		2	e	4	ស	٥	7	80	6	10	. 11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29

regulatory protein	probable membrane	probable carbon st	probable integral	MG098 homolog G07_	isp4 protein - fis	hypothetical prote	multidrug-efflux t	2-acylglycerophosp	hypothetical prote	hexose phosphate t	hypothetical prote	conserved hypothet	cytochrome-c oxida	hexuronate transpo	putitive sodium ch
RGECUC	S66834	A82294	A70814	S73921	S45495	C85064	G70042	E71667	B70367	C41853	T47021	D70006	T11317	F75037	T39035
H	7	7	7	7	7	7	7	7	7	7	~	~1	7	7	7
440	497	494	419	479	176	394	444	1152	480	442	507	388	523	401	1854
4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.7
111.5	111.5	111	110.5	110.5	110.5	110	110	109.5	109	108.5	108.5	108	107.5	107	107
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

hypothetical protein F16H11 3 - Caenorhabditis elegans
C; Species: Caenorhabditis elegans
C; Species: Caenorhabditis elegans
C; Species: Caenorhabditis elegans
C; Date: 20 - Sep-1999 #sequence_revision 20-Sep-1999 #text_change 20-Jun-2000
C; Accession: T16080
R; Wu, X.
Submitted to the EMBL Data Library, April 1996
A; Description: The sequence of C. elegans cosmid F16H11.
A; Reference number: 218458
A; Status: precliminary; translated from GB/EMBL/DDBJ
A; Molecule type: DNA
A; Residues: 1-434 <WUX>
A; Cross-references: EMBL:U55376; NID:q1280130; PID:q1280131; PIDN:AAA98003.1; GSPDB:G
A; Experimental source: strain Bristol N2; clone F16H11
C; Genetics:
A; Map position: X
A; Introns: 49/3; 94/2; 190/1; 256/3; 326/3; 326/3; 392/2
C; Superfamily: Caenorhabditis elegans hypothetical protein ZK809.4

Gaps . 0 Length 434; Indels Score 2265; DB 2; Pred. No. 3.9e-171; 0; Mismatches 98.7%; ilarity 99.1%; Conservative Query Match Best Local Similarity Matches 430; Conserv

ö

9

9 1 MVIINRSNTYAVEQEAFPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDG QQ

61 VETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVI 120 61 VETWYSKEFMGSLTIASQLPNASINVFNLFLLIAGPLIYRVFAPVCFNIVNLTIILILLVI 120 qq δ

121 VLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLI 180 180 ò qq

181 TVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKA 240 ŏ

240 300 ETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEI 241 181 g Ω

300 360 YTLITSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPV 241 301 g δλ

360 361 FFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLW 420 q δ a

ъ,

27;

Indels

Length 450;

361

g à g

```
A;Map position: 5
A:Introns: 63/3; 80/3; 120/3; 137/1; 178/1; 280/3; 333/3; 418/3; 464/2; 496/1; 521/2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-800 <MIL.
A;Cross-references: EMBL:277665; PIDN:CAB01223.1; GSPDB:GN00023; CESP:K02E11.1
A;Experimental source: clone K02E11
                                                                                                                         A; Experimental source: clone K09A9
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C.Species: Caenorhabditis elegans
C.Date: 15-0ct-1999 #sequence_revision 15-0ct-1999 #text_change 15-0ct-1999
C.Accession: T22347
R.MCMurray, A.
Submitted to the EMBL Data Library, July 1996
A.Reference number: 219715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120 IVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLL 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60 GVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180 ITVVKI---GVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R---EKAETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFP-VMMTVTTRGDSGFLNK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                353 VQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAKNEEAADNEGKMANYIATFKEAFPOLINVFLVFFVTLSIFPGVMMYVKDEKKGGTYDF
                                                                                                                                                                                                                                              A,Map position: X
A;Introns: 59/3; 115/2; 147/1; 318/1; 346/3
C;Superfamily: Caenorhabditis elegans hypothetical protein ZK809.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     12 VEQEA-FPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWF----
                                                                                                                                                                                                                                                                                                                                                               ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hypothetical protein K02E11.1 - Caenorhabditis elegans
                                                                                                                                                                                                                                                                                                                                                                                                           164;
                                                                                                                                                                                                                                                                                                                                                            30.8%; Score 706.5; DB 2 36.0%; Pred. No. 2.7e-48;
                                       A; Reference number: 219753
A; Accession: T23528
A; Status: preliminary: translated from GB/EMBL/DDBJ
A; Molecule type: DML
A; Residues: 1-450 < WILL
A; Residues: 1-450 < WILL
A; Cross-references: EMBL: 279601; PIDN: CAB01882.1; G:
  R;Swinburne, J. submitted to the EMBL Data Library, August 1996
                                                                                                                                                                                                                                                                                                                                                                                                         88; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                433 GIVSGLIFTMVIKFVV 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      413 GLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                               al Similarity
157; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Gene: CESP: K02E11.1
                                                                                                                                                                                                                            A; Gene: CESP: K09A9.3
                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 157,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                òγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6
                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
A; Residues: 1-461 <WILL>
A; Residues: 1-461 <WILL>
A; Residues: SMBL: Z68303; PIDN: CAA92642.1; GSPDB: GN00022; CESP: ZK809.4
A; Experimental source: clone ZK809
C; Genetics:
                                                                                                                                                                                                                     hypothetical protein ZK809.4 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Accession: T28006
R;Dobson, R
submitted to the EMBL Data Library, December 1995
A;Reference number: Z20454
A;Reference number: Z20454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hypothetical protein K09A9.3 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C:Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 20-Jun-2000
•C;Accession: T23528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      71 TGVVTGYPTVYSSNFQSFQTIASQVPNLLLNLFILVKGGLASRI--TVGLSIVAVCV 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----GVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTI 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNN 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        334 FAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNV 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7 SNTYAVEQEA-FPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ICGLLITVVKI----GVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     288 G------FLNKIMSENDEI----YTLLTSFLVFNLFAAIGSIVASKIHWPTPRYLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KGMEIREK - - - AETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFP - VMMTVTTRGDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 461;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Map position: 4
A;Introns: 54/3; 110/2; 142/1; 357/3
C;Superfamily: Caenorhabditis elegans hypothetical protein ZK809.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31.2%; Score 716.5; DB 2; 35.8%; Pred. No. 4.5e-49; tive 86; Mismatches 167;
                                                                                                                                                                                                                                                                                                                                                                                                       A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | :: | :: | :: | | DPSKAQVAGMMAGFFLISGIVSGLIFTMVIKMVV 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  394 VPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                 421 PVVIEHFVDKPSIL 434
                                                                                                           421 AVVIEHFVDKPSIL 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 163; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Gene: CESP: ZK809.4
```

11 9

ŏ g ò g ò Q ŏ g ò Db ò QQ ò g à q

115 129 175 232

292

254

352

us-08-816-011f-63.rpr

atch 25.0%; Score 574.5; DB 2; Length 800; cal Similarity 32.7%; Pred. No. 1.3e-37;	Qy 193 DEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHQKGMEIREKAET 242
88; Mismatches 165; Indels 23; Ga NMFITIADEVYVNVWFK-PDGVETWYSKEFMGSLTIGS	OY 243 DRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYT 302 1
78 78 448	303 -LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQT : : : : : :
QY 138 GMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKL 197	356
OY 198 VAIVYEGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTT 253 :: : : :: : : 565 RASLFFGLSSVAVVVCFILLNFLKRLAFYKKFGILRTSSQSDEEGIS-SWESVKLA 619	UY 416 TGGL-WPV1 424 1
QY 254 FTNCYGOLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLF 313	RESULT 6 C86156 hypothetical protein AAG10625.1 [imported] - Arabidopsis thaliana
OY 314 AAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFCNYRVQTRAYPVFFESTDIFVIG 371 1 1 1 1 1 1 1 1 1	C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: O:P.Mar-2001 #sequence_revision 02-Mar-2001 #text_change 31-Mar-2001 C;Accession: C86156 R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alon
QY 372 GIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLIG 417 1 :	Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, ansen, N.F.; Hughes, B.; Hutzar, L. Nature 408, 816-820, 2000 A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim,
RESULT 5 T01489 hypothetical protein F1707.13 - Arabidopsis thaliana	C.A.; L1, J.H.; L1, Y.; L1n, X.; L1u, S.X.; L1u, Z.A.; LUIOS, J.S.; Maltl, K.; Marzla Rizzo, M.; Rooney, T.; Rowley, D.; Sawano, H. A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallo ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W. A;Title: Sequence and analysis of Chronosome 1 of the plant Arabidopsis.
66	A; Keletence Number: A00141; MUID: ZIO10/19 A; Accession: C86156 A; Status: preliminary
Kiyysouskala, V.S.; Schwartz, J.K.; Torlumi, M.; Tu, G.; Kwan, A.; Ul., U.; Liu, S.; Li, rtz, D.; Li, Y.; Palm, C.J.; Shinn, P.; Sun, H.; Davis, R.W.; Ecker, J.R.; Federspiel, N submitted to the EMBL Data Library, June 1998 A; Description: Arabidopsis thaliana chromosome 1 BAC F1707 sequence. A; Reference number: 214334	A;Molecule type: DNA A;Residues: 1-408 <sto> A;Cross-references: GB:AE005172; NID:g9972375; PIDN:AAG10625.1; GSPDB:GN00141 C;Genetics: A;Map position: 1</sto>
A; Accession: T01489 A; Status: translated from GB/EMBL/DDBJ A; Molecule type: DNA A; Molecule type: DNA A; Residues: 1-428 <vys> A; Cross-references: EMBL: AC003671; NID: 92833627; PID: 93176684; GSPDB: GN00059; ATSP: F1707</vys>	Query Match Best Local Similarity 22.0%; Pred. No. 2.5e-12; Matches 99; Conservative 72; Mismatches 187; Indels 93; Gaps 14;
A;ExpErimental Source: cultivar Columbia C;Genetics: A;Gene: ATSP:F1707.13 A;Map position: 1	OY 12 VEQEAFPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYNYWFKPDGVETWYSKEFMG 71 :
Query Match 13.7%; Score 313.5; DB 2; Length 428;	QY 72 SLTIGSQLPNASINVENLELLIAGPLIYRVFABVCFNIVNLTIILILVIVLEPTEDSMSW 131 : : :
× 4:	Qy 132 F FWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNN 174 ::: :: ::
Db 35 PSDSYHFAYIIYFTLGVGFLLFWNAFITAVDYFSYLYPSTAVDRIFAVIYM 85 Qy 78 QLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTILLLVIVLEPTEDSMSWF 132	Qy 175ICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFF 219 1
Db '86LVALVCLFVIVVFYAHKSLASFRINLGLLLFVIALLVVPVLDLVVVKGQVGLYAG 140 Qy 133 FWYTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLN 192	Qy 220 ITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTI 274
Db 141 FDVTSAAVALSGLGDALMQGGLIGVAGEMPERYMQAVVAGTAGSGVLVSLLRILTKAVYP 200	QY 275 FPVMMTVTTRGDSGFL-NKIMSENDEIYTLLTSFLVFNLFPAIGSIVASKIHWPTPRYLK 333

```
A; Reference number: JC4195; MUID:95367016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone F36H2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Residues: 1-513 <WIL>
A; Cross-references: EMBL: Z81078;
A; Experimental source: clone F36H
                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 95; Conserva'
                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 76; Conserv
                      A; Accession: JC4195
A; Molecule type: mRNA
A; Residues: 1-327 <WIL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Gene: CESP: F36H2.2
                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        T21887
                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
Pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            36k hydrophobic nucleolar protein - mouse
C;Species: Mus musculus (house mouse)
C;Date: 03-Sep-1995 #sequence_revision 27-Oct-1995 #text_change 05-Nov-1999
C;Accession: JC4195
R;Williams, J.B.; Lanahan, A.A.
Blochem. Biophys. Res. Commun. 213, 325-333, 1995
A;Title: A mammalian delayed-early response gene encodes HNP36, a novel, conserved nucle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Comment: This protein has a role in the growth response and participates in the prolif
                                                                                                                                                                                                                                                                                                                                                                                                                        nucle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 predicted
                                                                                                                                                                                                                                                                                                                                                                                                                      a novel, conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ..
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Start codon: AUG
C;Keywords: nucleoprotein; phosphoprotein
C;Keywords: nucleoprotein; phosphate (Ser) (covalent) (by casein kinase II) #status
F;107/Binding site: phosphate (Thr) (covalent) (by casein kinase II) #status
                                                                                                                                                                                                                                                                                                         C:Species: Homo sapiens (man)
C:Date: 10-Sep:1995 #sequence_revision 27-Oct-1995 #text_change 21-Jul-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                      322 WACIVRLLFYPLFSAC-----LRGPKWLRTEVPVVVLTFMLGLTNGYLTSVLMIMAPKT 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ------GFIAENLKSQLLQSWYPILLITVYNISDFVGKSLTALYLWQSIKSAT 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121 SSPQKVALTLDLDLEKEPESEPDEPQKPGKPSVFTVFQKIWLTALCLVLVFTVTLSVFPA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Residues: 1-326 <WIL>
A;Cross-references: EMBL:X86681; NID:g951266; PIDN:CAA60380.1; PID:g951267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       143 INFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKI-----GVTYFLNDEPKL 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----ETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPV 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     278 MMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TPRYLKFA 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              336 IILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVP 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  235 VCLRFLFVPLFMLCHVPQRSR-LPILFPQDAYFITFMLLFAVSNGYLVSLTWCLAPRQVL 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7 INSFSAVLOGSLFGQLGTMPSTYSTLFLSGQGLAGIFAALAMLLSMASGV-----DAET 60
                                             FAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNV
                                                                                                                                                                                                                                                                                                                                               C; Accession: JC4196
R; Williams, J.B.; Lanahan, A.A.
Biochem. Biophys. Res. Commun. 213, 325-333, 1995
A; Title: A mammalian delayed-early response gene encodes HNP36, A; Accession: JC4196; WUID:95367016
A; Accession: JC4196
A; Molecule type: MRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           198 VAIVYF---GISLVILLVCAIALFFITKQDFY---HYHHQKGMEIREKA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9.3%; Score 214; DB 2;
22.0%; Pred. No. 1.2e-09;
tive 52; Mismatches 139
                                                                                                                                                       394 VPSHYSRFAAQLSVCTLMVGLLTGG----LW 420
                                                                                                                                                                                                                                                                                    36K hydrophobic nucleolar protein - human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        294 PHEREVAGALMTFFLALGLSCG 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             396 SHYSRFAAQLSVCTLMVGLLTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 22.09
Matches 71; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A Experimental source: heart
C; Comment: This protein has a
C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Gene: der12
  273 FP-
                                             334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
  Ω
                                           ò
                                                                                      g
                                                                                                                                 ò
                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
```

```
A:Residues: 1-37 (WIL)
A:Cross-references: EMBL:X86682; NID:9951302; PIDN:CAA60381.1; PID:9951303
A:Cross-references: EMBL:X86682; NID:9951302; PIDN:CAA60381.1; PID:9951303
C:Cromment: This protein has a role in the growth response and participates in the pro C:Genetics:
A:Genetics:
A:Start codon: AUG
C:Keywords: nucleoprotein; phosphoprotein
F:S4.74 inding site: phosphate (Ser) (Covalent) (by casein kinase II) #status predicted F:107/Binding site: phosphate (Thr) (covalent) (by casein kinase II) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Map position: 1
A:Introns: 28/3; 56/1; 93/2; 163/3; 277/3; 314/1; 341/3; 384/2; 407/2; 458/2; 480/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIDN:CAB03075.1; GSPDB:GN00019; CESP:F36H2.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hypothetical protein F36H2.2 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Species: Tal899 #sequence_revision 15-Oct-1999 #text_change 15-Oct-1999
C;Accession: T21887
R;Steward, C.
submitted to the EMBL Data Library, October 1996
A;Reference number: Z19483
A;Accession: T21887
A;Accession: T21887
A;Accession: T21887
A;Accession: T21887
A;Accession: Data A;Accession: T21887
A;Accession: T21887
A;Accession: T21887
A;Accession: Data A;Accession: Dat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           321 ASKIHWP---TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSF 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31 LVGFGVLLPWNMFITIAPEYYVNYWFKPDGV------ETWYSKEFMGSLTIGSQLP 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          109 AELLQADEKNGVPISPQQASPTLDLDPEKEPEPEPQKPGKPSVFVVFRKIWLTALCLVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5 WF-----INSFCAVLQGSLFGQLGTMPSTYSTLFLSGQGLAGIFAALAMLMSLAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             223 QDFYHYHHQKGMEIR------EKAETDRPSPSILWTTFTNCYGQLFNVWF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          267 CFAVTLTIFPVM--MTVTTRGDSG----FLNKIMSENDEIYTLLTSFLVFNLFAAIGSIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               169 VFTVTLSVFPAITAMVTTSSNSPGKWGLFFNPI------CCFLLFNVMDWLGRSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      218 TSYFLWPDEDSQQLLPLLVCLRFLFVPLFMLCHVPQHAR-LPIIFRQDAYFITFMLLFAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels 113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131 WFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKI--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 327;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 513;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        186 GVTYFLNDEPKLVAIVYF --- GISLVILLVCAIAL -----FFI ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        277 SNGYLVSLTMCLAPRQVLPHEREVAGALMTFFLALGLSCG 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.1%; Score 209.5; DB 2; 22.4%; Pred. No. 2.8e-09; tive 49; Mismatches 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               378 SHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8.6%; Score 196.5; DB 2;
ilarity 21.4%; Pred. No. 4.9e-08;
Conservative 77; Mismatches 159;
```

0.0 0.0	Db 172 -PKWFNEMFIRMLVVISSMGTAMTQGIMAIANVFGSEYSQGVWVGQAVAGVLPSLVLFA 230 Oy 187 VTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITK
Qy 328 TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIG 371	RESULT 11 T22164 hypothetical protein F44D12.9 - Caenorhabditis elegans hypothetical protein F44D12.9 - Caenorhabditis elegans C; Species: Caenorhabditis elegans C; Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 15-Oct-1999 C; Accession: T22164 R; Coles. L. R; Outse, L. R; Data Library, December 1995
RESULT 10 SJ6712 FUNZ6 protein - yeast (Saccharomyces cerevisiae) N.Alternate names: protein YAL022c Sipecias: Saccharomyces cerevisiae C;Date: 31-Dec-1993 #sequence_revisiae C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 29-Oct-1999 C;Accession: S36712 R;Ouellette, F.; Clark, M.W.; Keng, T.; Storms, R.K.; Zhong, W.; Zeng, B.; Fortin, N.; E submitted to the EMBL Data Library, January 1993 A;Description: Sequencing of Chromosome I from Saccharomyces cerevisiae: analysis of a 3	A; Reference number: 219525 A; Recession: T22164 A; Accession: T22164 A; Accession: T22164 A; Accession: T22164 A; Residues: 1-143 < WIL> A; Residues: 1-143 < WIL> A; Residues: 1-143 < WIL> C; Genericances: EMBL: 268298; PIDN: CAA92605.1; GSPDB: GN00022; CESP: F44D12.9 A; Experimental source: clone F44D12 C; Generics: A; Generic
A;Accession: 530.17.2 A;Modecule type: DNA A;Modecule type: DNA A;Modecule type: DNA A;Residues: 1-517 <00E> A;Cross-references: EMBL:L05146; NID:g171851; PIDN:AAC04935.1; PID:g171853; MIPS:YAL022c C;Genetics: SGD:FUNZ6 A;Gene: SGD:FUNZ6 A;Cross-references: SGD:S0000020; MIPS:YAL022c A;Map position: 1L	Query Match 7.8%; Score 180; DB 2; Length 143; Best Local Similarity 40.0%; Pred. No. 2.4e-07; Matches 32; Conservative 18; Mismatches 26; Indels 4; Gaps 1; Qy 14 QEAFPRDKYNIVYMLVILVGFGVLLPWNMFITIAPEXYNVWFKPDGVETWYSKEFMGSL 73
C;Keyvords: transmembrane #status predicted <tm1> F;79-95/Domain: transmembrane #status predicted <tm1> F;155-17/Domain: transmembrane #status predicted <tm2> F;117-193/Domain: transmembrane #status predicted <tm3> F;218-234/Domain: transmembrane #status predicted <tm4> F;245-251/Domain: transmembrane #status predicted <tm4></tm4></tm4></tm3></tm2></tm1></tm1>	Qy 74 TIGSQLPNASINVFNLFLII 93 : : : ::: Db 123 GVTSQIPNVGIMILNTIVVM 142
F;344-360/Domain: transmembrane #status predicted <tm6> F;412-428/Domain: transmembrane #status predicted <tm7> F;445-461/Domain: transmembrane #status predicted <tm8> F;500-516/Domain: transmembrane #status predicted <tm8></tm8></tm8></tm7></tm6>	RESULT 12 D85064 hypothetical protein AT4905120 [imported] - Arabidopsis thaliana C; Species: Arabidopsis thaliana (mouse-ear cress) C; Date: 16 Feb-2001 #sequence_revision 16 Feb-2001 #text_change 16 Feb-2001
Query Match 8.0%; Score 182.5; DB 2; Length 517; Best Local Similarity 19.9%; Pred. No. 6.3e-07; Matches 79; Conservative 69; Mismatches 131; Indels 117; Gaps 20; Oy 23 NIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEFMGSLTIGSQL 79	C.Accession: 02004 R; anonymous, The European Union Arabidopsis Genome Sequencing Consortium, The Cold Sp Nature 402, 769-777, 1999 A;Title: Sequence and analysis of chromosome 4 of the plant Arabidopsis thaliana. A;Reference number: A85001; MUID:20083488 A;Accession: D85064
	A;Status: preliminary A;Molecule type: DNA A;Molecule type: DNA A;Rosscules: 1-418 <sto> A;Cross-references: GB:NC_001268; NID:g7267271; PIDN:CAB81054.1; GSPDB:GN00140 C;Genetics: A;Gene: AH405120 A;Map position: 4</sto>

QY 187 VTYFLNDEPKLVAIVYEGISLVILLUVCAIALFFI-TKQDFYHYHHQKG 233	ge 31-Dec-2000	R:Bult, C.J.; White, O.; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, G.G.; Blak R:Bult, C.J.; White, O.; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, G.G.; Blak ; Reich, C.I.; Overbeek, R.; Kirkness, E.F.; Weinstock, K.G.; Merrick, J.M.; Glodek, Ison, J.D.; Sadow, P.W.; Hanna, M.C.; Cotton, M.D.; Roberts, K.M.; Hurst, M.A. Science 273, 1058-1073, 1996 A.Authors: Kaine, B.P.; Borodovsky, M.; Klenk, H.P.; Fraser, C.M.; Smith, H.O.; Woese A.Title: Complete genome sequence of the methanogenic archaeon, Methanococcus jannasc A.Reference number: A64300; MUID:96337999 A.Accession: H64383 A.Status: preliminary; nucleic acid sequence not shown; translation not shown A.Molecule type: DNA A.Kesidues: 1-432 cBUL> A.Kesidues: 1-432 cBUL> A.Cross-references: GB:U67514; GB:L77117; NID:92826304; PIDN:AAB98666.1; PID:91591386 C;Genetics: A.Map position: REV598993-597695 C;Superfamily: probable transporter MJ0672	Query Match 5.8%; Score 134; DB 2; Length 432; Best Local Similarity 19.1%; Pred. No. 0.0034; Matches 82; Conservative 80; Mismatches 133; Indels 134; Gaps 22; Qy 66 SKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIXRVFAPVCFNIVNLTILLILV 119	Oy 165YIGALLIGNNICGLLITVVKIGYTY
Ouery Match 6.3%; Score 144; DB 2; Length 418; Best Local Similarity 20.6%; Pred. No. 0.00054; Matches 96; Conservative 76; Mismatches 159; Indels 134; Gaps 23; Qy 18 PRDKYNIVYMLVILVGFGVLLPWNMFTIIAPETY-VNYWFFPGVETWYSKEF-MGS 72		Qy 324 IHWPTPRILKFAILLRALFIPFFFCNYRVQTRAYPVFFESTDIFVIGGIAM 375	R; anonymous, The European Union Arabidopsis Genome Sequencing Consortium, The Cold Sprint Nature 402, 769-777, 1998 National R\$1001; MUD:20083488 Nature Arabidopsis thaliana. A; Reference number: A85001; MUD:20083488 Nature 1008340 Nature 402 Nature 1009 Nature 402 Nature 1009 Nature 402 Nature 1009 Nature 402 Nature 1009 Nature 10	Query Match 6.0%; Score 138.5; DB 2; Length 418; Best Local Similarity 21.0%; Pred. No. 0.0015; Matches 95; Conservative 73; Mismatches 174; Indels 111; Gaps 23; QY 21 KYNIVYMLVILVGFGVLLPWNMFITIAPEYY-VNYWFFDGVETW-YSKEFMGSLTIGSQ 78

```
C. Accession: G9641

R.Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.; ansen, N.F.; Hughes, B.; Huizar, L.

Nature 408, 816-820, 2000

A.Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C. C.A.; Li, J.H.; Li, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziali, Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.

Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.

Rizzo, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.

A;Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-382 <STO>
A;Cross-references: GB:AE005173; NID:94585872; PIDN:AAD25545.1; GSPDB:GN00141
C;Genetics:
                                                                                                                                                                                                                                                                                   hypothetical protein T25B24.2 [imported] - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 31-Mar-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           331 YLKFAIILRALFIPFFFFCNYRVQTRAYPVFFEST-----DIFVIGGIAMSFSHGYLSAL 385
                              334 VLLFLVVTITIILT-NFISNTGLTGIIVPILFGVSLGIPKEILIL-AVGMSASCSFI--L 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     74 TIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLT------IILILVIVLE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             124 PTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVV 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----IREKAETDRPSPSILWTTFTNCYGQL-----FNVWFCFAVTLTIFPV 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 278 MMTVTTRGDSGFLNKIMSEN---DEIYTLLTSFLVFNLFAAIGSIVAS--KIHWPTPRYL 332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       333 KFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPN 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40 ---AKLNTRLRNIFGYSLYTAGTF-----CLIILDLASHGSGSVVAYVLLCLIVAL- 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20 DKYN-----IVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSKEFMGSL 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               189 TVSADLAAAGLQEQAEQVHQMDESKIQKLTK--KQLLRENIDLGINLSLIYVVTLSIFP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   184 KIGVTYFLNDEP----KLVAIVYFGISLVILLVCAI---ALFFITKQDFYHYHHQKGME---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.6%; Score 128.5; DB 2; Length 382; 20.0%; Pred. No. 0.0081; Live 69; Mismatches 158; Indels 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               393 VVPSHYSRFAAQLSVCTLMV----GLLTGGLWPVVIEHF 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              344 GYNGPEANALGNL-MCVFLLGGIFAGVCLGWLWLIGNDSF 382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 92; Conserv
                                                                                                   386 AMGYTPNVV 394
                                                                                                                                    : | | | :
390 PVGTPPNAI 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Accession: G96641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Map position: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           236
                                                 qq
                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                   ò
```

Search completed: February 27, 2002, 17:00:18 Job time: $204\ \mathrm{sec}$

THIS PAGE BLANK (USPTO)

Sequence 61, Appl Sequence 61, Appl Sequence 63, Appl Sequence 63, Appl Sequence 63, Appl Sequence 2, Appl Sequence 13, Appl Sequence 13, Appl Sequence 2, Appl Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli

Sequence (Sequence (Sequence (

```
TITLE OF INVENTION: (NEMPR) INSENSITIVE, EQUILIBRATIVE, NUCLECOSIDE TRANSPORT TITLE OF INVENTION: (NEMPR) INSENSITIVE, EQUILIBRATIVE, NUCLECOSIDE TRANSPORT TITLE OF INVENTION: (NEMPR) NUCLEIC ACIDS ENCODING THE SAME AND METHODS OF TITLE OF INVENTION: USE NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS: ADDRESSE: David A. Jackson, Esq.
STREET: 411 Hackensack Ave, Continental Plaza, 4th
STREET: Floor
CITY: Hackensack
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
US-08-486-673B-2
US-08-486-673B-5
US-08-476-000-61
US-08-476-976-61
US-08-476-976-61
US-08-476-976-61
US-08-476-000-63
US-08-476-006-63
US-08-476-976-63
US-08-476-976-63
                                                                                                                                                                                                                                                            US-08-746-682A-13
US-08-749-816-2
                                                                                                                                                                                                                     US-08-466-103A-2
US-08-597-236-13
                                                                                                                                                                                                                                                                                                                      US-09-030-267-5
US-08-750-723A-2
                                                                                                                                                                                                                                                                                                                                                                                                       ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Jackson Esq., David A.
REGISTRATION NUMBER: 26,742
REFERENCE/DOCKET NUMBER: 1340-1-013N
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-487-5800
TELERAX: 201-343-1684
                                                                                                                                                                                                                                                                                                     5432081-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/09/058,389A
FILING DATE: April 9, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4, Application US/09058389A Patent No. 6130065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Belt, Judith A. APPLICANT: Crawford, Charles APPLICANT: Patel, Divyen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 201-343-1684
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 456 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: hENT1
    3395
3399
3399
3397
420
420
420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Hackensack
STATE: New Jersey
COUNTRY: USA
ZIP: 07601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New Jersey
: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-058-389A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-058-389A-4
    (without alignments) 678.224 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Appli
Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Appli
Appli
Appli
Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Appli
Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                       2294
1 MVIINRSNTYAVESEAFPRD.....LTGGLWPVVIEHFVDKPSIL 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4,
                                                                                                                                        ; Search time 14.4 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /cgn2_6/ptodata/2/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6A_COMB.pep:*
/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PcTUS_COMB.pep:*
/cgn2_6/ptodata/2/iaa/PcTUS_COMB.pep:*
                                           Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-058-389A-4
US-09-058-389A-2
US-09-058-389A-3
US-09-058-389A-3
US-08-07-938-4
US-08-07-938-4
US-08-472-840-4
US-08-472-938-6
US-08-472-948-6
US-08-472-840-6
US-08-472-840-6
US-08-472-840-6
US-08-472-840-6
US-08-472-840-5
US-08-472-976-5
US-08-472-976-5
US-08-472-976-5
US-08-472-976-5
                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                      GenCore version 4.5 Copyright (c) 1993 - 2000 Comp
                                                                                                                                                                                                                                                                                                                                                             212252 segs, 22503292 residues
                                                                                                                                      February 27, 2002, 16:56:28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                   - protein search, using sw model
                                                                                                                                                                                                                                                                                                                      Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Issued_Patents_AA:*
                                                                                                                                                                                                                 US-08-816-0111-63
                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1111.5
1111.5
1111.5
1111.5
1111.5
1111.5
1111.5
1111.5
1111.5
1108.5
1008.5
1008.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
1006.5
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                       Perfect score:
                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database :
                                                                                                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                          ou:
```

```
18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   : Sequence 3, Application US/09058389A; Patent No. 6130065
TELECOMMUNICATION INFORMATION:
                 TELEPHONE: 201-487-5800
TELEFAX: 201-343-1684
                                                                                     LENGTH: 456 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 232 KGMEIREKA------
                              TELEFAX: 201-343-1684
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                        ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                 Best_Local Similarity 22.99
Matches 106; Conservative
                                                                                                          TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                            MOLECULE TYPE: protein
DESCRIPTION: hENT2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Hackensack
                                                                                                                                                                                                  HYPOTHETICAL: NO FRAGMENT TYPE:
                                                                                                                                                                                                                                       ORIGINAL SOURCE:
                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                         US-09-058-389A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-058-389A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET:
STREET:
                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:

APPLICANT: Belt, Judith A.

APPLICANT: Crawford, Charles R.

APPLICANT: Crawford, Charles R.

APPLICANT: Patel, Divyen
TITLE OF INVENTION: A NITROBENZYLMERCAPTOPURINERIBOSIDE
TITLE OF INVENTION: (NBMPR)-INSENSITIVE, EQUILIBRATIVE, NUCLEOSIDE TRANSPORT
TITLE OF INVENTION: DROTEIN, NUCLEIC ACIDS ENCODING THE SAME AND METHODS OF
TITLE OF INVENTION: USE
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
                                                                      13;
                                                                                                                                                                                                                                                                             304 IGMFPAVTVEVKSSIAG----SSTWERYFIPVSCFLTFNIFDWLGRSLTAVFMWPGKDS 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 PAAPLPERNSLSAIFNNVMTLCAMLPLLLFTYLNSFLHQRIPQSVRILGSLVAILLVFLI 125
                                                                                                                                                                                                                                                        118 LVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICG 177
                                                                                                                                                                                                                                                                                                                                                                                                       -----KGMEIREKAETDRPSPSILWTT-----FTNCYGQLFNVWFCFAVT 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TP 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RYLKFAIILRALFIPFFFFCNYRVQTRAY-PVFFESTDIFVIGGIAMSFSHGYLSALAMG 388
                                                                                                                                                                                 ----PVCFNIVN-----LTIILI 117
                                                                        Gaps
                                                                                                                              PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVE---TWYSKEFMGSLT 74
                                                                                                                                                                                                                                                                                                                                                     185 FFASVAMI-CAIASGSELSESAFGYFITACAVIILTIICYLGLPRLEFYRYYQQLKLEGP
                                                                                                                                                                                                                                                                                                                                                                                                                              178 LLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ-----
                                                                      263
                                  Length 456;
                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: David A. Jackson, Esq.
STREET: 411 Hackensack Ave, Continental Plaza, 4th
STREET: Floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
FILLING DATE: April 9, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             417 FGPKKVKPAEAETAGAIMAFFLCLGLALGAVFSFLFRAIV 456
                                Score 343.5; DB 4;
Pred. No. 3.3e-26;
7; Mismatches 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         389 YTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                               75 IGSQLP--NASINVFNLFLIIAGPLIYRVFA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Jackson Esq., David A.
REGISTRATION NUMBER: 26,742
REFERENCE/DOCKET NUMBER: 1340-1-013N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 2, Application US/09058389A
Patent No. 6130065
                                15.0%; Sccilarity 24.3%; Pre
Conservative 77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: Hackensack
STATE: New Jerse
                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 2
US-09-058-389A-2
                                                                      Matches 112;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                  Query Match
                                                                                                         18
                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                       232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        359
                                                                                                                                           .
G
                                                                                                                                                                                                                                                                                        Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                          ò
                                                                                                                                                                               ò
                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                   ολ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         q
```

```
(NBMPR)-INSENSITIVE, EQUILIBRATIVE, NUCLEOSIDE TRANSPORT PROTEIN, NUCLEIC ACIDS ENCODING THE SAME AND METHODS OF
                                                                                                                                                            11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----NFNNWYTLLSQLPLLLFTLLNSFLYQCVPETVRILG----SLLAILLLFALTAAL 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : | | : |: || : : |: || || : : : : || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123 EPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITV 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   117 VKVDMSPGPFFSITMASVCFINSFSAVLQGSLFGQLGTMPSTYSTLFLSGQGLAGIFAAL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             231 QAQELETKAELLQSDENGIPSSPQKVALTLDLDLDEKEPESEPDEPQKPGKPSVFTVFQKI 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          258 YGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    318 SIVASKIHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAM 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              345 RSLTSYFLWPDEDSRLLPLLVCLRFLFVPLFMLCHVPQRSR-LPILFPQDAYFITFMLLF 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63 TWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLIVIVL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               183 VKI-----GVTYFLNDEPKLVAIVYF---GISLVILLVCAIALFFITKQDFY---HYHHQ 231
                                                                                                                                                                                                                                                                                                                                                                                                                                 291 WLTALCLVLVFTVTLSVFPAITAMVTSSTS-----PGKWSQFFNPICCFLLFNIMDWLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----ETDRPSPSILWTTFTNC
                                                                                                                                                                     85;
                 Length 456;
                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
APPLICANT: Belt, Judith A.
APPLICANT: Crawford, Charles R.
APPLICANT: Crawford, Davyen
TITLE OF INVENTION: A NITROBENZYLMERCAPTOPURINERIBOSIDE
TITLE OF INVENTION: (NBMPR) INSENSITIVE, EQUILIBRATIVE,
TITLE OF INVENTION: PROTEIN, NUCLEIC ACIDS ENCODING THE
TITLE OF INVENTION: USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E: David A. Jackson, Esq. 411 Hackensack Ave, Continental Plaza, 4th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       376 SFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
14.2%; Score 326.5; DB 4; 22.9%; Pred. No. 1.6e-24; ive 71; Mismatches 200;
```

```
PROTEIN, NUCLEIC ACIDS ENCODING THE SAME AND METHODS OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63 TWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----NFNNWVTLLSQLPLLLFTLLNSFLYQCVPETVRILG----SLLAILLFALTAAL 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123 EPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTVIGALLIGNNICGLLITV 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               183 VKI-----GVTYFLNDEPKLVAIVYF---GISLVILLVCAIALFFITKQDFY---HYHHQ 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7 PRDSYHLVGISFFILGLGTLLPWNFFITAIPYFQARLAGAGNSTARILSTNHTGPEDAF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               107; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 4, Application US/08097938
Patent No. 5629174
GENERAL INFORMATION:
APPLICANT: SCARBOROUGH, ROBERT M.
APPLICANT: SCARBOROUGH, ROBERT M.
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR AND ITS
TITLE OF INVENTION: 500 NUMBER OF SEQUENCES: 59
                                                                     CORRESPONDENCE ADDRESS:
ADDRESSEE: David A. Jackson, Esq.
STREET: 411 Hackensack Ave, Continental Plaza, 4th
STREET: Floor
                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/058,389A FILING DATE: April 9, 1998 CLASSIFICATION: 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYY------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 7.9%; Score 181; DB 4; Best Local Similarity 23.6%; Pred. No. 2.5e-10; Matches 59; Conservative 42; Mismatches 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1340-1-013N
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Jackson Esq., David A.
REGISTRATION NUMBER: 26,742
REFERENCE/DOCKET NUMBER: 1340-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-487-5800
TELEFAX: 201-343-1684
                                                                                                                                                                                                                                                                                                    COMPUTER: 'IBM PC compatible OPERATING SYSTEM: PC-DOS/MS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 8: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                               Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 247 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: protein
                                                                                                                                                                                                     COUNTRY: USA ZIP: 07601
COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       single
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                             CITY: Hackensack
STATE: New Jersey
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        232 KGMEIREKAE 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       231 QAQELETKAE 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRANDEDNESS:
TOPOLOGY: 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-058-389A-8
                                                                                                                                       STREET:
CITY: Ha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-097-938-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 8, Application US/09058389A
Patent No. 6130065
GENERAL INFORMATION:
APPLICANT: Belt, Judith A.
APPLICANT: Crawford, Charles R.
APPLICANT: Crawford, Charles R.
APPLICANT: Patel, Divyen.
APPLICANT: Patel, Divyen.
TITLE OF INVENTION: A UTROBENZYLMERCAPTOPURINERIBOSIDE
TITLE OF INVENTION: (NBMPR)-INSENSITIVE, EQUILIBRATIVE, NUCLEOSIDE TRANSPORT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121 SSPQKVALTLDLDLEKEPESEPDEPQKPGKPSVFTVFQKIWLTALCLVLVFTVTLSVFPA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     198 VAIVYF---GISLVILLVCAIALFFITKQDFY---HYHHQKGMEIREKA------ 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241 --------ETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPV 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       278 MMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TPRYLKFA 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             336 IILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVP 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            143 INFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKI-----GVTYFLNDEPKL 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 ITAMVISSTS-----PGKWSQFFNPICCFLLFNIMDWLGRSLTSYFLWPDEDSRLLPLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                         COMPUTER REARABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/058,389A
FILING DATE: APFIL 9, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.3%; Score 214; DB 4; L 22.0%; Pred. No. 1.8e-13; tive 52; Mismatches 139;
                                                                                                                                                                                                                                                                     ATTORNET/AGENT INFORMATION:
NAME: Jackson Esq., David A.
REGISTRATION NUMBER: 26,742
REFERENCE/DOCKET NUMBER: 1340-1-013N
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-447-5800
TELEPHONE: 201-343-1684
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     294 PHEREVAGALMTFFLALGLSCG 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 326 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity 22...
To 71; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; ORGANISM: Homo sapiens US-09-058-389A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein
DESCRIPTION: hHNP36
HYPOTHETICAL: NO
                                                                                                                                                                                                                                                       800
  STATE: New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: sir
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          amino acid
                                                                                                                                                                                                                             FILING DATE: AP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FRAGMENT TYPE:
                                               07601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-058-389A-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        368
```

ò g ò g à qq ŏ q ŏ qq

δ

7;

```
TITLE OF INVENTION:
                                                                                                 CITY: Washington
STATE: D.C.
COUNTRY: USA
                                                                                                                                                                                                       MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 7
US-08-472-840-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 VETWYS-KEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              154 VYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148 LCNV-----LIG-FFYGNMYCSILFMTCLSVQRYWVIVNPMGHSRKKANIAIGISLAI 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       293 VLAMYLI--CF-----TPSNL-----IJJVHYFLIKSQGQSHVYALYI 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          200 WLLILLUTIPLYVKQTIF--------IPAL---NITTCHDVLPEQLLV 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303 LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFF 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -LLVCAIAL-FFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    259 GQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
4.9%; Score 111.5; DB 1; Length 398;
Best Local Similarity 18.5%; Pred. No. 0.0041;
Matches 75; Conservative 54; Mismatches 131; Indels 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 4, Application US/08476000
Patent No. 5716789
GENERAL INFORMATION:
APPLICANT: SUNDELIN, JOHAN
APPLICANT: SCARBOROGGH, ROBERT M.
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR, ITS AGONISTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               329 VALCLSTLNSCIDPFVYYFVSHDFRDHAKNALLCRSVRTVKQMQV 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363 ESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                              OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                    2000 Pennsylvania Ave. N.W., Ste. 5500
                                                                                                                                                                                                                                                                                                                                                                       22803-20006.00
                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/097,938
FILING DATE: 26-JUL-1993
CLASSIFICATION: 435
                       MORRISON & FOERSTER
                                                                                                                                                                                                                                                                                                   ATTORNEY AGENT INFORMATION:
NAME: MURASHIGE, KATE H.
REGISTRATION NUMBER: 29,959
REFERENCE/DOCKET NUMBER: 22803
TELECOMMUNICATION INFORMATION:
TELEFAX: (202) 887-1500
TELEFX: 90-4030
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 398 amino acids
                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                           Washington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; MOLECULE TYPE: protein US-08-097-938-4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
                                                                                               20006-1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY:
                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-476-000-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
AND ANTAGONISTS, AND NUCLEIC ACIDS ENCODING THE RECEPTOR 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61 VETWYS-KEFMGSLTIGSQLPNASINVFNLFLIIAGPÜIYRVFAPVCFNIVNLTIILILV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -------WVTLGMATSINFSNGLYENS 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            :| |: | :| :| :| 88 VVGLPSNGMALWVFLFRTKKKHPAVIYMANLALADLLSVIWFPLKIAYHIHGNNWIYGEA 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154 VYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    148 LCNV-----LIG-FFYGNMYCSILFMTCLSVQRYWVIVNPMGHSRKKANIAIGISLAI 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | :|| : |: :|| : || 238 GDMFNYFLSLAIGVFLFPAFLTA----SAYVLMIRMLRSSAMDENSEKKRRAIKLIVT 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      303 LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFF 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----TPSNL-----LLVVHYFLIKSQGQSHVYALYI 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         200 WILLILLVTIPLYVVKQTIF----------IPAL---NITTCHDVLPEQLLV 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56 VETVFSVDEFSASVLTGK-----F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              210 -LLVCAIAL-FFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    259 GQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             54; Mismatches 131; Indels 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            363 ESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                329 VALCLSTLNSCIDPFVYYFVSHDFRDHAKNALLCRSVRTVKOMOV 373
                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/476,000 FILING DATE: 07-JUN-1995 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 111.5; DB Pred. No. 0.0041;
                                                                                      ADDRESSEE: MORRISON & FOERSTER STREET: 2000 Pennsylvania Ave. N.W., Ste.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/390,301
FILING DATE: 25-JAN-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30,988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120 IVLEPTEDSMSWFF------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (202) 887-1500
TELEPAX: (202) 887-0763
TELES: 90-4030
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 18.5%;
Matches 75; Conservative 5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : 398 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              293 VLAMYLI--CF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: ADLER, REID G. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; MOLECULE TYPE: protein US-08-476-000-4
                                                                                                                                                                                                           COUNTRY: USA ZIP: 20006-1812 COMPUTER READABLE FORM:
                           NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
```

S

1

```
APPLICANT: SUNDELIN, JOHAN
APPLICANT: SCARBOROUGH, ROBERT M.
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR, ITS AGONISTS
TITLE OF INVENTION: AND ANTAGONISTS, AND NUCLEIC ACIDS ENCODING THE RECEPTOR NUMBER OF SEQUENCES: 63
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 VETWYS-KEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLLV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ...------WVTLGMATSINFSNGLYENS 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88 VVGLPSNGMALWVFLFRTKKKHPAVIYMANLALADLLSVIWFPLKIAYHIHGNNWIYGEA 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200 WELILLVTIPLYVVKQTIF---------19AL---NITTCHDVLPEQLLV 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             238 GDMFNYFLSLAIGVFLFPAFLTA-----SAYVLMIRMLRSSAMDENSEKKRKRAIKLIVT 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56 VETVFSVDEFSASVLTGK-----F 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                154 VYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         210 -LLVCAIAL-FFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY-
           329 VALCESTENSCIDPFVYYFVSHDFRDHAKNALLCRSVRTVKOMOV 373
                                                                                                                                                                                                                                                                                                                                                                 STREET: 2000 Pennsylvania Ave. N.W., Ste. 5500 CITY: Washington STATE: D.C. COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  54; Mismatches 131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.9%; Score 111.5; DB 18.5%; Pred. No. 0.0041;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 887-1500
TELEPHONE: (202) 887-0763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/476,976
FILING DATE: 07-JUN-1995
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/390,301
FILING DATE: 25-JAN-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                        MORRISON & FOERSTER
                                                                                                                                           Sequence 4, Application US/08476976 Patent No. 5874400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30,988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              398 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 18.59
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEX: 90-4030
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: ADLER, REID G. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; MOLECULE TYPE: protein US-08-476-976-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120 IVLEPTEDSMSWFF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                               20006-1812
                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                        US-08-476-976-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dp
                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
Sequence 4, Application US/08472840
Patent No. 576575
GENERAL INFORMATION:
APPLICANT: SUNDELIN, JOHAN
APPLICANT: SCARBOROUGH, ROBERT M.
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR, ITS AGONISTS
TITLE OF INVENTION: AND ANTAGONISTS, AND NUCLEIC ACIDS ENCODING THE RECEPTOR NUMBER OF SEQUENCES: 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              148 LCNV-----LIG-FFYGNMYCSILFMTCLSVQRYWVIVNPMGHSRKKANIAIGISLAI 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 VETWYS-KEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154 VYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          259 GQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYT 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFF 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------F 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    210 -LLVCAIAL-FFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131; Indels 145;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        363 ESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                            :: MORRISON & FOERSTER
2000 Pennsylvania Ave. N.W., Ste. 5500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 4.9%; Score 111.5; DB Best Local Similarity 18.5%; Pred. No. 0.0041 Matches 75; Conservative 54; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2803-0006.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/08/472,840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/390,301
FILING DATE: 25-JAN-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                            COMPOTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPENATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30,988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120 IVLEPTEDSMSWFF-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ||| :| || :| 56 VETVFSVDEFSASVLTGK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE: (202) 887-1500
TELERAX: (202) 887-0763
TELEX: 90-4030
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   : 398 amino acids
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; MOLECULE TYPE: protein US-08-472-840-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: ADLER, REID G. REGISTRATION NUMBER:
                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                            Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                         ZIP: 20006-1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                              STATE: D
COUNTRY:
                                                                                                                                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGIH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303
```

g

ò a

q ò g ò δ g ò ò

Qy 303 LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFF 362	
Db 293 VLAMYLICFTPSNLLLVVHYFLIKSQGQSHVYALYI 328	Oy 259 GQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDE1YT 302
Qy 363 ESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407 : : : : : : : bb 329 VALCLSTLNSCIDPFVYYFVSHDFRDHAKNALLCRSVRTVKQMQV 373	Db 238 GDMFNYFLSLAIGVFLFPAFLTASAYVLMIRMLRSSAMDENSEKRRRAIKLIVT 292 Qy 303 LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFF 362
	Db 293 VLAMYLICFTPSNLLLVVHYFLIKSQGQSHVYALY 328
RESOLT 9 US-08-44-410-4 - Seminance 4. Annlication HS/08474410	Qy 363 ESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
13212 MATION:	Db 329 VALCLSTLNSCIDPFVYYFVSHDFRDHAKNALLCRSVŘTVKOMOV 373
	RE
9,1	
ADDRESSEE: MORRISON & FOERGTER STREET: 2000 Pennsylvania Ave. N.W., Ste. 5500 CITY: Washington	; APPLICANT: Sundelin, Johan ; APPLICANT: Scarborough, Robert M. · TTTLE OF INVENTION: Nucleic Acids Encoding the C140 Receptor
& `	
ZIF: ZUUD-1812 COMPUTER RAGABLE FORM: MEDTIM TYPE: Elonov disk	CORRENT FILING DATE: 1995-06-0/ FRIOR APPLICATION NUMBER: 08 08/097,938 - DBIOD BILING DATE: 1003-07-36
COMPUTER: IBM PC Compatible OPERATING SYSTEM: PC-DOS/MS-DOS	FRIOR APPLICATION NUMBER: PCT/US94/08536 ; PRIOR FILING DATE: 1994-07-26 ; PRIOR FILING DATE: 1994-07-26
A F	; NUMBER OF SEQ ID NOS: 63 ; SOFTWARE: PatentIn Ver. 2.1
APPLICATION NUMBER: US/08/474,410 FILING DATE:	; SEQ ID NO 4 ; LENGTH: 398
PRIOR APPLICATION DATA: APPLICATION NUMBER: US 08/390,301	JIPE: PKM CORGANISM: 0RGANISM: US-08-486-673B-4
FILING DATE: 25-JAN-1995 ATTORNEY/AGENT INFORMATION:	
NAME: ADJEK, KELD G. NAME: ADJEK, KELD G. REGISTRATION NUMBER: 2803-0006.20	Query March 4.9%; Score III.5; DB 4; Length 398; Best Local Similarity 18.5%; Pred. No. 0.0041; Matches 75; Conservative 54; Mismatches 131; Indels 145; Gaps
TELECOMMUNICATION INFORMATION: TELEPHONE: (202) 887-1500 TELEFAX: (202) 887-0763	VETWYS-KEFMGSLTIGSQLPNASINVFNLFLIIAGP
96	SVDEFSASVLTGKF
SEQUENCE CHARACTERISTICS: LENGTH: 398 amino acids TYPE: amino acid	Qy 120 IVLEPTEDSMSWFF
TOPOLOGY: linear MOLECULE TYPE: protein S-08-474-410-4	Qy 154 VYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVI 209
Ouery Match Best Local Similarity 18:5%; Pred: No. 0.0041; Matches 7: Concernation 18:5%; Assembled 13: India 146. Conc. 10.	140 LCNV
VETWYS-KEFMGSLTIGSOLPNASINVFNLFLLIAGPLYRVFAPVCFNIVNLTILLLV 119	259 GOLFINWHSCFAVTLTIFPVMMTVTTRCDSGFLNKTMSENDEIVT
56 VETVESVDEFSASVLTGKF 87	238 GDMFNYFLSLAIGVFLEPAFLTASAYVLMIRMLRSSAMDENSEKKRKRAIKLIVT
120 IVLEPTEDSMSWFFWUTLGMATSINFSNGLYENS	Qy 303 LLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRQTRAYPVFF 362
Db 88 VVGLPSNGMALWVFLFRTKKKHPAVIYMANLALADLLSVIWFPLKIAYHIHGNNWIYGEA 147	Db 293 VLAMYLICFTPSNLLLVVHYFLIKSQGQSHVYALYI 328
QY 154 VYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVI 209 1	Qy 363 ESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407 : : :
4y 210 -LLVCAIAL-FFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY 258	

18;

```
Sequence 6, Application US/08476000
Patent No. 5716789
GENERAL INCORMATION:
APPLICANT: SUNDELIN, JOHAN
APPLICANT: SCARBOROUGH, ROBERT M.
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR, ITS AGONISTS
TITLE OF INVENTION: AND ANTAGONISTS, AND NUCLEIC ACIDS ENCODING THE RECEPTOR NUMBER OF SEQUENCES: 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels 115; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 VETWYS-KEFMGSLTIGSQ----LPNASINVFNLFLIIAGPLIYRVFA-----PVCFN 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56 VEIVFSVDEFSASVLTGKLTTVFLPIVYIIVFVVGLPSNGMALW-VFLFRTKKKHPAVIY 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             109 IVNLTIILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGA 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155 FFYGNMYCSILFMTCLSVQRYWVIVNPMGHSRKKANIAIGISLAIWLLILLVTIPLYVVK 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 223 QDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY------GQLFNVWFCFAVTLT 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           274 IFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYTLLTSFLVFNLFAAIG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     318 SIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSF 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300 CFIPSNL------LLVVHYFLIKSQGQSHVYALYIVALCLSTLNSCIDPF 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI-LLVCAIAL-FFITK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 215 QTIF--------IPAL---NITTCHDVLPEQVLVGDMFNYFLSLAIGVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         253 LFPAFLTA----SAYVLMIRMLRSSAMDENSEKKRKRAIKLIVTVLAMYLI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 398;
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/097,938
FILING DATE: 26-JUL-1993
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: MURASHIGE, KATE H.
REGISTRATION UNBER: 29,959
REFERENCY/DOCKET NUMBER: 22803-20006.00
TELECOMMUNICATION INFORMATION:
TELECHONE: (202) 887-1500
TELECHONE: (202) 887-1500
TELECHONE: (202) 887-0763
TELEX: 90-4030
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 398 amino acids
TYPE: amino acid
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4.7%; Score 108.5; DB 1;
19.2%; Pred. No. 0.0083;
Live 59; Mismatches 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: MORRISON & FOERSTER
2000 Pennsylvania Ave. N.W., Ste. 5500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    344 VYYFVSHDFRDHAKNALLCRSVRTVKQMQV 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    378 SHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity 19.2
Matches 75; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: MORRIS
STREET: 2000 Penr
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
US-08-097-938-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-476-000-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Óλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      203 LLVIIPLXVVKQIIF-------IPAL---NITTCHDVLPEQLLVGDMF 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          55 VETVFSVDEFSASVLAG-----KLTTVFL----PIVYTIVFAVGLPSNGMALWVFLF 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               104 -----PVCFNIVNLTIILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGV 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              103 RTKKKHPAVIYMANLALADLLSVI-------WFPLKIAYHIHGNNWIYGEALCNV 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           158 GGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVILLVC 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     214 AIAL--FFITKQDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY------GQLF 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NVWFCFAVTLTIFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYTLLTS 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       307 FLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTD 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 VETWYS-KEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYR-VFA------- 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57; Mismatches 131; Indels 137;
                                                                                                               APPLICANT: Scarborough, Robert M.
APPLICANT: Scarborough, Robert M.
TITLE OF INVENTION: Nucleic Acids Encoding the C140 Receptor FITLE OF INVENTION: Nucleic Acids Encoding the C140 Receptor FILE REFERENCE: 4481-5006-08-US
CURRENT APPLICATION NUMBER: US/08/486,673B
CURRENT APPLICATION NUMBER: US 08/097,938
PRIOR PILING DATE: 1993-07-26
PRIOR FILING DATE: 1994-07-26
NUMBER OF SEQ ID NOS: 63
SOFTWARE: PATENTIN VET. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 397;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 14
US-080-097-938-6
Sequence 6, Application US/08097938
Patent No. 5629174
GENERAL INFORMATION:
APPLICANT: SCHUBCLIN, JOHAN
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR AND ITS
TITLE OF INVENTION: AGONISTS AND ANTAGONISTS
TITLE OF INVENTION: AGONISTS AND ANTAGONISTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               332 LSTLNSCIDPFVYYFVSHDFRDHAKNALLCRSVRTVKOMOV 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   367 IFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 2000 Pennsylvania Ave. N.W., Ste. 5500 Washington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 109.5; DB
Pred. No. 0.0065;
                                                   Sequence 63, Application US/08486673B Patent No. 6297026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 59
CORRESPONDENCE ADDRESS:
ADDRESSEE: MORRISON & FOERSTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 4.8%;
Best Local Similarity 19.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      76; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20006-1812
                                                                                                 GENERAL INFORMATION:
                             US-08-486-673B-63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-486-673B-63
                                                                                                                                                                                                                                                                                                                                                                                                                                  CENGTH: 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
```

18;

```
AND ANTAGONISTS, AND NUCLEIC ACIDS ENCODING THE RECEPTOR 63
                                                                            ADDRESSEE: MORRISON & FOERSTER
STREET: 2000 Pennsylvania Ave. N.W., Ste.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             344 VYYFVSHDFRDHAKNALLCRSVRTVKQMQV 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 378 SHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/390,301
FILING DATE: 25-JAM-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                  PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: 2803
TELECOMUNICATION INFORMATION:
TELEPHONE: (202) 887-1500
TELEFAX: (202) 887-0763
TELEFAX: 90-4030
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: ADLER, REID G. REGISTRATION NUMBER: 30,988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 398 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                            ZIP: 20006-1812
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                    NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                 TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TOPOLOGY: linear
US-08-472-840-6
                                                                                                                       Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300 CFIPSNL---
                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
US-08-476-976-6
                                                                                                                                        STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---PVCFN 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       169 LLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI-LLVCAIAL-FFITK 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IVNLTIILLILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGA 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels 115; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         223 QDFYHYHHQKGMEIREKAETDRPSPSILWTFTNCY------GQLFNVWFCFAVTLT 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         318 SIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGLAMSF 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        274 IFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYTLLTSFLVFNLFAAIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                253 LFPAFLTA----SAYVLMIRMLRSSAMDENSEKKRKRAIKLIVTVLAMYLI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match

4.7%; Score 108.5; DB 1; Length 398;
Best Local Similarity 19.2%; Pred. No. 0.0083;
Matches 75; Conservative 59; Mismatches 141; Indels 115.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-472-840-6
Sequence 6, Application US/08472840
Sequence 6, Application US/08472840
Sequence 6, Application US/08472840
Sequence 6, Application US/08472840
Sequence 6, Application: Application: Statement COMPANIEST M.
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR, ITS AGONISTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61 VETWYS-KEFMGSLTIGSQ----LPNASINVFNLFLIIAGPLIYRVFA----
                                                                                                        MEDIUM 11FE: FILPLY 41SA

COMPOURE: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/476,000 -
FILING DATE: 07-JUN-1995
CLASSIFICATION NUMBER: US 08/390,301
FILING DATE: 25-JAN-1995
ATTORNEY/AGENT INFORMATION:
NAME: ADLER, REID G
REGISTRATION NUMBER: 2803-0006.20
TELECOMMUNICATION INMBER: 2803-0006.20
TELECOMMUNICATION INMBER: 2803-0006.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   344 VYYFVSHDFRDHAKNALLCRSVRTVKQMQV 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        378 SHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (202) 887-1500
TELEFAX: (202) 887-0763
TELEX: 90-4030
INFORMATION FOR SEO ID NO: 6:
SEQUENCE CHARACTERISTICS:
                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                398 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TOPOLOGY: linear
US-08-476-000-6
                                                     20006-1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               215 QTIF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db
```

```
18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 VETWYS-KEFMGSLTIGSQ----LPNASINVFNLFLIIAGPLIYRVFA-----PVCFN 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   109 IVNLTIILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGA 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    223 QDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY------GQLFNVWFCFAVTLT 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56 VEIVESVDEFSASVLTGKLTTVFLPIVYIIVFVVGLPSNGMALW-VFLFRTKKKHPAVIY 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 169 LLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI-LLVCAIAL-FFITK 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 FFYGNMYCSILFMTCLSVQRYWVIVNPMGHSRKKANIAIGISLAIWLLILLVTIPLYVVK 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274 IFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYTLLTSFLVFNLFAAIG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---LLVVHYFLIKSQGQSHVYALYIVALCLSTLNSCIDPF 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 318 SIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSF 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 :|| :| :| :| :| :: 253 LFPAFLTA-----SAYVLMIRMLRSSAMDENSEKRKRAIKLIVTVLAMYLI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
4.7%; Score 108.5; DB 1; Length 398;
Best Local Similarity 19.2%; Pred. No. 0.0083;
Matches 75; Conservative 59; Mismatches 141; Indels 115;
SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/472,840
```

```
Sequence 6, Application US/08476976
Patent No. 5874400
GENERAL INFORMATION:
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: SCARBOROUGH, ROBERT M.
APPLICANT: SCARBOROUGH, ROBERT M.
TITLE OF INVENTION: RECOMBINANT C140 RECEPTOR, ITS AGONISTS
TITLE OF INVENTION: AND ANTAGONISTS, AND NUCLEIC ACIDS ENCODING THE RECEPTOR NUMBER OF SEQUENCES:
CORRESPONDENCES:
ADDRESSEE: MORRISON & FOBERSTER
ADDRESSEE: MORRISON & FOBERSTER
ATTLE D.C.
CITY WASHINGTON
STREET: 2000 Pennsylvania Ave. N.W., Ste. 5500
CITY WASHINGTON
STREET: D.C.
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          109 IVNLTIILILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGA 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         223 QDFYHYHHQKGMEIREKAETDRPSPSILWTTFTNCY-----"-GQLFNVWFCFAVTLT 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 VETWYS-KEFMGSLTIGSQ----LPNASINVFNLFLIIAGPLIYRVFA-----PVCFN 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            169 LLIGNNICGLLITVVKIGVTYFLNDEP----KLVAIVYFGISLVI-LLVCAIAL-FFITK 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 274 IFPVMMTVTTRGDSGFL-----NKIMSENDE-----IYTLLTSFLVFNLFAAIG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      318 SIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSF 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300 CFIPSNL------LLVVHYFLIKSQGQSHVYALYIVALCLSTLNSCIDPF 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
4.7%; Score 108.5; DB 2; Length 398;
Best Local Similarity 19.2%; Pred. No. 0.0083;
Matches 75; Conservative 59; Mismatches 141; Indels 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/476,976
FILING DATE: U7-JUN-1995
CLASSIFICATION: 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: ADLER, REID G.
RECISTRATION NUMBER: 30,988
REFERENCE/DOCKET NUMBER: 2803-0006.20
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 887-1500
TELEPHONE: (202) 887-0763
TELEEX: 90-4030
INFORMATION FOR SEQ ID NO: 6:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     378 SHGYLSALAMGYTPNVVPSHYSRFAAQLSV 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/390,301
FILING DATE: 25-JAN-1995
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                  ZIP: 20006-1812
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 398 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 398 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TOPOLOGY: linear
US-08-476-976-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           С
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
```

Db 344 VYYEVSHDFRDHAKNALLCRSVRTVKQMQV 373

Search completed: February 27, 2002, 16:59:53 Job time: 205 sec

THIS PAGE BLANK (USPTO)

```
4.5
Compugen Ltd.
GenCore version
Copyright (c) 1993 - 2000
```

- protein search, using sw model OM protein

; Search time 25.35 Seconds February 27, 2002, 16:56:13 Run on:

Title:

(without alignments) 1268.158 Million cell updates/sec US-08-816-011F\63 2294 1 WVIINRSNTYAVEQEAFPRD......LTGGLWPVVIEHFVDKPSIL 434

Perfect score: Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Scoring table:

522463 seqs, 74073290 residues Searched:

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

A_Geneseq_1101:* Database

/ SIDS8/gogdata/geneseq/geneseqp/AA1980.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1981.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1982.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1983.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1985.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1985.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1986.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1986.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1988.DAT:*
/ SIDS8/gogdata/geneseqg/geneseqp/AA1988.DAT:*yeuwaryyyeuraryyyeurayy, Anibayd, DATI: */SIDS8/gcgdata/geneseq/geneseqp/AA1993.DAT:* /SIDS8/gcgdata/geneseq/geneseqp/AA1994.DAT:* /SIDS8/gcgdata/geneseq/geneseqp/AA1995.DAT:* /SIDS8/gcgdata/geneseq/geneseqp/AA1995.DAT:* /SIDS8/gcgdata/geneseq/geneseqp/AA1997.DAT:* /SIDS8/gcgdata/geneseq/geneseqp/AA1999.DAT:* /SIDS8/gcgdata/geneseq/geneseqp/AA1999.DAT:* DAT: * DAT: * /SIDS8/gcgdata/geneseq/geneseqp/AA1989. /SIDS8/gcgdata/geneseq/geneseqp/AA1990. /SIDS8/gcgdata/geneseg/genesegp/AA1991. /SIDS8/gcgdata/geneseg/genesegp/AA1992.

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

/SIDS8/gcgdata/geneseq/geneseqp/AA2001.DAT:*

SUMMARIES

		Description	CORK potassium cha	Rat ENT1 receptor	Human equilibrativ	Human ENT1 protein	Human ENT1 recepto	Equilibrative nucl	Human equilibrativ	Human NBMPR-IENTP	Human PRO1380 (UNQ	Protein of the inv	Rat equilibrative
		ID	AAR92315	AAY82286	AAW69555	AAB15520	AAY82285	AAW83965	AAW69558	AAB15517	AAY99363	AAB66112	AAW69557
		DB	17	21	19	21	21	19	19	21	21	22	19
	Query	Length		•				456		•	•		•
dР	Query	Match	8.66	16.2	15.0	15.0	14.3	14.2	14.2	14.2	14.2	14.2	14.0
		Score	2290	372.5	343.5	343.5	327.5	326.5	326.5	326.5	326.5	326.5	320.5
	Result	NO.	1	7	m	4	J.	9	7	ω	6	10	11

		301		957	ט כ	AAW69556	Rat equilibrative
		C.2/2	- ا	0 0	7 (AAMOGOO	LIDIOSAL
		21.7		306	7 (AAB33330	
		181		247	101	AAW83966	nativel
		181	6.7	247	21	AAB15518	Human NBMPR-IENTP
		180		314	20	AAW89005	Polypeptide fragme
		179.5	•	423	22	AAB88377	Human membrane or
		119.5		383	22	AAG82466	S. epidermidis ope
		114.5	•	527	21	AAY76126	ש
		113.5	-	329	22	AAB92687	protein s
		113.5	•	360	22	AAB75546	secreted
		113.5	٠	530	22	AAB75598	secreted
		113.5		545	22	AAB94667	
		113.5	•	579	21	AAY82460	
		113.5	6.4	582	21	AAY82459	
		111.5	٠	397	21	AAB35641	
		111.5	٠	398	16	AAR66921	C140
			٠	398	17	AAW01953	
		н.	•	545	21	AAY94910	Human secreted pro
		- (4 . ωί	439	9.0	AAW61371	Non-adrenergic SM
		108.5	•	776	21	AAY96167	Schizosaccharomyce
		201		354	ρς	AAW2592/	xenopus meratonin
		106.5	٠	365	7.7	AAE06597	Human protein havi
		106.5	٥.٠	200	T t	AAR66922	
		100.5	•	, v	7	AAWOL934	Murine C140 recept
		106.5	•	4. c	7 0	AAG82657	s. epidermidis ope
	200	106 106	4. د د د	318	770	AAG/1555	Human Oliactory re
		100	٠	010	7 (AAG 12403	
		_	•	400	77	AAB93/2I	2,
			4 ×	700	17	AAKOOYZS	numan C140 recept
				000	, C	AABEO107	
	4 5	105	. 6	393	21	AAX81642	···
		٠					
						ALIGNMENTS	
		•					
RESULT	ULT	1					
AAR	AAR92315	,					
ID	AAR92315		standard;	Protein;		434 AA.	
××							
X X	AAK9231	. 'CT67					
۲ ک د	16-00	6-0CT-1996	(first entry)	entr		.	
, ×))	1		;	, ,		

CORK potassium channel protein.

CORK; potassium channel; nematode; pore-forming domain; transmembrane helix; N-glycosylation site; potassium-agonist; potassium-antagonist; drug screening; nematocide; anthelminthic; cardiac disorder,

Caenorhabditis elegans.

150..162 /note= "Pore-forming H5 domain" 156..158 /note= "G-Y/F-G motif" domain" 'note= "N-glycosylation site" /note= "N-glycosylation site" /note= "N-glycosylation site" /note= "Pore-forming H5 33..35 /note= "G-Y/F-G motif" 81..83 Location/Qualifiers 26..39 Misc-difference Misc-difference Modified-site Modified-site Modified-site Domain Domain

WO9613520-A1

~

```
AAY82286
                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                            This potassium channel sequence is encoded by the CORK gene from Caenorhabditis elegans, and has 2 pore-forming domains situated between hydrophobic transmembrane helix domains. The CORK sequence contains structural features resembling pore-forming H5 domains contain the GY/FC tripeptide motif required for potassium channels. 2 Putative pore-forming H5 domains selectivity. The protein contains 3 asparagine-linked glycosylation sites. The protein may be expressed in a heterologous host cell to assay substances to determine effects on cell growth. Potassium-agonists or potassium-antagonists identified by this method may be used as nematocides, anthelminthics or in therapy of cardiac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 VETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLLVI 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YTLLTSFLVFNLFAAIGSIVASKIHWPTPRYLKFAIILRALFIPFFFFCNYRVQTRAYPV 360
                                                                                                                                                                                             Caenorhabditis elegans - useful in assaying substances to determine effects on cell growth, and in inhibiting nematode and insect pests
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MVIINRSNTYAVEQEAFPRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 VLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQKGMEIREKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 434;
                                                                                                                                                                               Potassium channel genes from Drosophila melanogaster and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 2290; DB 17;
Pred. No. 9.3e-228;
1; Mismatches 0;
                                                                                                                                                                                                                                      Claim 13; Fig 9; 79pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99.8%;
                                                                                 (AMCY ) AMERICAN CYANAMID CO
                                                     94US-0332312.
                           95WO-US14364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                              Price LA;
                                                                                                                                        WPI; 1996-239450/24.
N-PSDB; AAT18168.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 433; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                               434 AA;
                           25-OCT-1995;
                                                     31-OCT-1994;
09-MAY-1996
                                                                                                              MH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Seguence
                                                                                                              Pausch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
```

q ŏ 9 ò P ò g à q à 셤 ò g ò

```
Rat; ENT1; ENTR1; immunosuppressant; vasotropic; thrombolytic; cytostatic; hypotensive; antinflammatory; analgesic; anticoagulant; nucleoside transporter; ischaemia; cerebral embolism; malignant tumour; organ transplant rejection; renitis; pancreatitis; hypertension; analgesic; blood platelet coagulation inhibitor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes human and rat ENT1 receptors (ENTR1), with some amino-acids deleted, substituted or added, but which retain nucleoside transport activity, and can be used in drug development for agents in treating e.g. ischemula, cerebral embolism, rejection in organ transplant, malignant tumours, renitis, pancreatitis and hypertension. The EWTR1 proteins are nucleoside transporters which have vasotropic, immunosuppressant, thrombolylic, cytostatic, hypotensive, analgesic, antiinflammatory and anticoagulant activities. The transporter proteins, their DNA, oligonucleotides, transformants and antibodies can be used in drug development for agents in treating ischaemia, cerebral embolism, rejection in organ transplant, malignant tumours, renitis, pancreatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Novel nucleoside transporter polypeptide, useful in drug development for agents in treating e.g. ischemia, cerebral embolism, rejection in organ transplant, malignant tumors, renitis, pancreatitis and hypertension
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----PDGVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVF 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APVCFNIVNLTIILLILVIVLEPTEDSMSW----FFWVTLGMATSINFSNGLYENSVYGVGG 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYV 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and hypertension, and as analgesics, or blood platelet coagulation inhibitors, as well as agents to reduce side-effects during chemotherapy. The present sequence represents the rat ENTR1 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 372.5; DB 21; Length
Pred. No. 7.5e-30;
9; Mismatches 209; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nakagawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81-83; 94pp; Japanese.
  AA.
  Protein; 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kambe M,
                                                                                                                                                                 Rat ENT1 receptor SEQ ID NO:5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (KYOW ) KYOWA HAKKO KOGYO KK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16.2%;
25.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99WO-JP04602.
                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SNTYAVEQEAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Miyaji H, Mimura H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000-256588/22
  standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    475 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AAA08030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Example 3; Page
                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200012550-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NYWFK - - - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27-AUG-1998;
                                                                                                        19-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120;
AAY82286
                                                     AAY82286;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
```

13;

FFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLW 420

PVVIEHFVDKPSIL 434

421 421

361

361

 \sim

13;

Gaps

59;

Length 456; Indels 18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVE---TWYSKEFMGSLT 74

Conservative

Matches 112;

q

õ q ò qq δλ qq δ qq δ

δ

Query Match Best Local Similarity

456 AA;

Sequence

x o

|:|:| |: ::|| |||||| |:| |:| || pqdrykavwliffmlglgtllpwnffmt-atgyftnrldmsqnvslvtaelskdagasaa 75 IGSQLP--NASINVFNLFLIIAGPLIYRVFA-------PVCFNIVN-----LTIILI

117

65

paaplpernslsaifnnvmtlcamlplllftylnsflhgripgsvrilgslvaillvfli 125

LVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICG 177

118 99

184

```
310
   DFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFF 219
                                                                                                                                                                                                                                                 263 NVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVAS 322
                                                                                                                                                                                                                                                                                                                                                                                                         368 wiqvpgprskllpilavsrvclvplfilcnygprshltlvlfqs-diypilftcllglsn 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Newly isolated equilibrative nucleoside transporter protein(s) and gene(s) - used to develop products for treating disorder(s) associated with the transporter(s) and for use with nucleoside
                                                                                                                                                                                                                                                                                  220 ITKQDFYHYHHQKGMEIREKAETDRP---SPSI-------LWTTFTNCYGQLF
                                                                                                                                                                                                                                                                                                                                                                      KIHWPTPR--YLKFAIILRALFIPFFFCNYRVQTRAYPVFFESTDIF-VIGGIAMSFSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    equilibrative nucleoside transporter; hENT1; hENT2; rENT1; coronary; cerebrovascular anoxia; viral infection; cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380 GYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Human equilibrative nucleoside transporter 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW69555 standard; Protein; 456 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Young JD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97WO-IB01657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97US-0064004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96US-0034083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-OCT-1998 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Baldwin SA, Cass CE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (UYAL-) UNIV ALBERTA. (UYLE-) UNIV LEEDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1998-388035/33.
N-PSDB; AAV40276.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO9829437-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30-DEC-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         09-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW69555;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rENT2;
091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW69555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X D X 
δ
                                                          g
                                                                                                                          δ
                                                                                                                                                                           qq
                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                      οχ
                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
```

LLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ-----

178

232

244 gegetkldliskgeepragkeesgysvsnsqptneshsikailknisvlafsvcfiftit 303

--KGMEIREKAETDRPSPSILWTT-----FTNCYGQLFNVWFCFAVT

LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TP 329

389 YTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428

RYLKFAIILRALFIPFFFFCNYRVQTRAY-PVFFESTDIFVIGGIAMSFSHCYLSALAMG

330 359

ò

qq

qq

ò

qq

```
Antiviral; antitumour; NBMPR-iENTP; nitrobenzylmercaptopurineriboside; insensitive, equilibrative nucleoside transporter protein; cancer; plasma membrane; facilitated diffusion; gene therapy; primer; probe.
                                                                                                                                                                                                                                                                                                                                                                                                                                        New nucleic acid encoding nucleoside transporter, useful for drug screening to identify antitumour and antiviral agents and for gene
417 fgpkkvkpaeaetagaimafflclglalgavfsflfraiv 456
                                                                                                                                                                                                                                                                                                                                                            (SJUD-) ST JUDE CHILDREN'S RES HOSPITAL.
                                                                  AAB15520 standard; Protein; 456 AA.
                                                                                                                                                                                                                                                                                                          98US-0058389
                                                                                                                                                                                                                                                                                                                                  97US-0043659
                                                                                                                     14-FEB-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2000-637839/61.
                                                                                                                                                Human ENT1 protein.
                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                        09-APR-1998;
                                                                                                                                                                                                                                                                                                                                  11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                      Crawford CR,
                                                                                                                                                                                                                                                    US6130065-A.
                                                                                                                                                                                                                                                                              10-OCT-2000
                                                                                            AAB15520;
                                                      AAB15520
```

The present sequence represents a substantially purified equilibrative nucleoside transporter (RNT), human ENT1 (hENT1). ENTS can transport a variety of purines and pyrimidines, including adenosine, uridine, aguanosine, inosine, formycin B, tubercidin, and thymidine. ENTS are bidirectional, they transport a suitable permeant both into and out of cells. ENTS can be used as a tool for the development of new nucleoside drugs. Products from the present invention can be used for treating a subject having a disorder associated with an ENT. They can also be used with nucleoside drugs in the treatment of e.g. coronary or cerebrovascular anoxia, viral infection or cancer. The products (e.g. antibodies and oligonucleotides hybridising to nucleic acid sequences encoding ENTS) can also be used for detection and drug screening.

5; Fig 3; 97pp; English.

Claim

drug(s)

```
(nitrobenzylmercaptopurineriboside insensitive, equilibrative nucleoside transporter protein) from HeLa cells. The protein transports nucleosides across the plasma membrane by a facilitated diffusion process and is involved in the proliferative response. The transporter is useful in screening to identify natural nucleoside permeants and/or their linibitors or analogues, potential therapeutic agents, also for studies on protein structure and mechanism. Cells that express the iENTP as the only transporter protein are used for drug screening (especially to identify antitumour and antiviral nucleoside analogues), in chemotherapy
                                                                            invention relates to the isolation of a gene encoding a NBMPR-iENTP
                                                                                                                                                                                                                                                                             of cancer and for selective expression of heterologous genes for gene therapy. The cDNA is used for recombinant expression of iENTP and as a source of oligonucleotides (diagnostic primers and probes, ribozymes and antisense sequences). Antibodies raised against iENTP are used for detection of the protein by usual immunoasays and as (ant)agonists of iENTP activity. This sequence represents the human ENTI protein and is used for comparison with the human NBMPR-iENTP protein (AAB15517).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75 IGSQLP--NASINVFNLFLIIAGPLIYRVFA------PVCFNIVN-----LTIILI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 paaplpernslsaifnnvmtlcamlplllftylnsflhqripqsvrilgslvaillvfli 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118 LVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICG 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                244 geqetkldliskgeepragkeesgysysnsqptneshsikailknisylafsvcfiftit 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TP 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RYLKFAIILRALFIPFFFFCNYRVQTRAY-PVFFESTDIFVIGGIAMSFSHGYLSALAMG 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEXYVNYWFKPDGVE---TWYSKEFMGSLT 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    --------KGMEIREKAETDRPSPSILWTT-----FTNCYGQLFNVWFCFAVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; ENT1; ENTR1; immunosuppressant; vasotropic; thrombolytic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 343.5; DB 21; Length 456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 24.3%; Score 343.0, __.
Similarity 24.3%; Pred. No. 7e-27;
Mismatches 212; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       389 YTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fgpkkvkpaeaetagaimafflclglalgavfsflfraiv 456
                                      Disclosure; Fig 2A-B; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human ENT1 receptor SEQ ID NO:1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAY82285 standard; Protein; 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 112; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                   456 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sednence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAY82285;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local
  therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAY82285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
The present invention describes human and rat ENTI receptors (ENTRI), with some amino-acids deleted, substituted or added, but which retain nucleoside transport activity, and can be used in drug development for agents in treating e.g. ischaemia, cerebral embolism, rejection in organ transplant, malignant tumnours, ranitis, pancreatitis and hypertension. The ENTRI proteins are nucleoside transporters which have vasotropic, immunosuppressant, thrombolylic, cytostatic, hypotensive, analgesic, their DNA, oligonucleotides, transformants and antibodies can be used in drug development for agents in treating ischaemia, cerebral embolism, rejection in organ transplant, malignant tumours, renitis, pancreatitis and hypertension, and as analgesics, or blood platelet coagulation inhibitors, as well as agents to reduce side-effects during chemotherapy. The present sequence represents the human ENTRI protein.
cytostatic; hypotensive; antiinflammatory; analgesic; anticoagulant; nucleoside transporter; ischaemia; cerebral embolism; malignant tumour; organ transplant rejection; renitis; pancreatitis; hypertension; analgesic; blood platelet coagulation inhibitor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel nucleoside transporter polypeptide, useful in drug development for agents in treating e.g. ischemia, cerebral embolism, rejection in organ transplant, malignant tumors, renitis, pancreatitis and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NYWFK------PDGVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYR 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAI 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80 ---fklrnssspatgedpegsd--ilnyfesylavastvpsmlclvanfllvnrvavhir 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            135 vla-----sltvilaifmvitalvkvdtfswtrgffavtivcmvilsgastvfsssiy 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216 ALFFITKQDFYHY------HHQKGMEIREKAETDRPSPSI------LWTTFTN 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            247 lylllsrleyaryymrpvlaahvfsgee--elpqdslsapsvasrfidshtpplrpilkk 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SNTYAVEQEAF-------PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101 VFAPVCFNIVNLTIILLLVIVLEP--TEDSMSW---FFWVTLGMATSINFSNGLYENSVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gmtgsfpmrnsqalisggamggtvsavasl-vdlaassdvrnsalaffltatiflvlcmg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 475;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14.3%; Score 327.5; DB 21; Length 24.4%; Pred. No. 3.3e-25; ive 83; Mismatches 202; Indels
                                                                                                                                                                                                                                                                                                                                                        ŝ
                                                                                                                                                                                                                                                                                                                                                        Nakagawa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 1; Page 70-74; 94pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                        Kambe M,
                                                                                                                                                                                                                                                                                                                (KYOW ) KYOWA HAKKO KOGYO KK
                                                                                                                                                                                                                                99WO-JP04602.
                                                                                                                                                                                                                                                                        98JP-0241248.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 14.3
Best Local Similarity 24.4
Matches 116; Conservative
                                                                                                                                                                                                                                                                                                                                                        Mimura H,
                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2000-256588/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       475 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; AAA08027
                                                                                                                                                WO200012550-A1
                                                                                                             Homo sapiens
                                                                                                                                                                                                                                26-AUG-1999;
                                                                                                                                                                                                                                                                        27-AUG-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hypertension
                                                                                                                                                                                        09-MAR-2000
                                                                                                                                                                                                                                                                                                                                                        Miyaji H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
          q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
```

13;

Gaps

15;

257 CYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSE--NDEIYTLLTSFLVFNLFA 314

S

```
\overset{\bullet}{\times} \overset{\bullet}{\cup} \overset{\bullet}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Equilibrative nucleoside transport protein; iENTP; NBMPR; transport; nitrobenzylmarcaptopurine riboside; antiviral; antitumour; screening; inhibitor; drug; knockout mice; cancer; chemotherapy; gene therapy; adenosine deaminase; factor VIII.
305 taslgfcvtyvffitsliypavct----nieslnkgsgslwttkffiplttfllynfad 359
                                                                                       315 AIGSIVASKIHWPTP--RYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGG
                                                                                                                                              | : : | | : : | | : : | 360 lcgrqltawiqvpgpnskalpgfvllrtcliplfvlcnyqprvhlktvvfgsdvypalls
                                                                                                                                                                                                                                                                                                               373 IAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New equilibrative nucleoside transport protein insensitive to nitrobenzylthio-purine riboside - useful for, e.g. identifying specific therapeutic nucleoside analogues and in gene therapy to protect transduced cells against ablative chemotherapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Equilibrative nucleoside transport protein (iENTP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "transmembrane domain TM11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "transmembrane domain TM10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7.02.
293..312
/note= "transmembrane domain TM7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13..27
/note= "transmembrane domain TM1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "transmembrane domain TM3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "transmembrane domain TM4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "transmembrane domain TM8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'note= "transmembrane domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "transmembrane domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "transmembrane domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "transmembrane domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (SJUD-) ST JUDE CHILDREN'S RES HOSPITAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW83965 standard; Protein; 456 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patel DH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0058389
97US-0838845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US07283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "t
194..214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note= "t:
326..341
/note= "t:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "t
125..144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              432..452
/note= "t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ..379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   162..185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               393..413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Belt JA, Crawford CR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1998-594576/50.
N-PSDB; AAV69698.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-FEB-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9846749-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW83965;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW83965
                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δy
                                                                                                                                                                                                                                                                 ò
```

```
This represents an equilibrative nucleoside transport protein (iENTP),
which is insensitive to nitrobenzylmercaptopurine riboside (NBMPR). Cells
transformed with a construct containing the iENTP nucleic acid can be
used to produce the protein recombinantly iENTP is used to identify
specific ligands (particularly antiviral and antitumour nucleoside
analogues that are preferentially transported into cells) and to raise
antibodies. Cells in which iENTP provides all available transport
activity are used: (a) to identify permeants of iENTP and (b) to screen
specific inhibitors of iENTP (potential drugs). Fragments of the iENTP
cucleic acid are used, as probes, primers, antisense molecules, and
ribozymes for therapy or diagnosis, and knockout mice in which both
alleles encoding iENTP contain an inactivating defect are also useful for
alleles encoding iENTP contain an inactivating defect are also useful for
alleles used particularly, for cancer chemotherapy. Vectors in which
the iENTP gene is linked to a heterologous gene (e.g. encoding adenosine
the iENTP gene is linked to a heterologous gene (e.g. encoding adenosine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63 TWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       231 gageletkaellgsdengipsspgkvaltldldlekepesepdepgkpgkpsvftvfgki 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            258 YGQLFNVWFCFAVTLT1FPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIVASKIHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAM 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KGMEIREKA-----ETDRPSPSILWTFFINC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     183 VKI-----GVTYFLNDEPKLVAIVYF---GISLVILLVCAIALFFITKQDFY----HYHHQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amllsmasgv-----daetsalgyfitpcvgilmsivcylslphlkfaryylankssqa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----nfnnwvtllsqlplllftllnsflygcvpetvrilg----sllailllfaltaal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                equilibrative nucleoside transporter; hENT1; hENT2; rENT1; coronary; cerebrovascular anoxia; viral infection; cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 19; Length 456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     376 SFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14.2%; Score 326.5; DB 19; 22.9%; Pred. No. 4e-25; ive 71; Mismatches 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYY------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human equilibrative nucleoside transporter 2.
Claim 13; Pages 71-72; 114pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW69558 standard; Protein; 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 22.9
Matches 106; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       456 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW69558;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rENT2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW69558
```

9

```
op
ò
                                                                                                                                             ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11;
                                                                                                                                                                                                                                                                                                                                                                                                        The present sequence represents a substantially purified equilibrative nucleoside transporter (ENT), human ENT2 (hENT2). ENTS can transport a variety of purimes and pyrimidines, including adenosine, uridine, guanosine, formycin B, tubercidin, and thymidine. ENTS are bidirectional, they transport a suitable permeant both into and out of cells. ENTS can be used as a tool for the development of new nucleoside drugs. Products from the present invention can be used for treating a subject having a disorder associated with an ENT. They can also be used with nucleoside drugs in the treatment of e.g. coronary or erebrovascular anoxia, viral infection or cancer. The products (e.g. antibodies and oligonucleotides hybridising to nucleic acid sequences encoding ENTS) can also be used for detection and drug screening.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63 TWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLLVIVL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      231 qaqeletkaellgsdengipsspqkvaltldldlekepesepdepgkpgkpsvftvfqki 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       258 YGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIG 317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIVASKIHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAM 375
                                                                                                                                                                                                                                                                                             Newly isolated equilibrative nucleoside transporter protein(s) and gene(s) - used to develop products for treating disorder(s) associated with the transporter(s) and for use with nucleoside
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123 EPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----nfnnwvtllsqlplllftllnsflygcvpetvrilg----sllailllfaltaal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183 VKI-----GVTYFLNDEPKLVAIVYF---GISLVILLVCAIALFFITKQDFY---HYHHQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KGMEIREKA-------ETDRPSPSILWTTFTNC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14.2%; Score 326.5; DB 19; Length 456; 22.9%; Pred. No. 4e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYY------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       71; Mismatches
                                                                                                                                                                                                                                                                                                                                                                               Claim 5; Fig 20; 97pp; English.
                                                                           97WO-IB01657
                                                                                                         97US-0064004
96US-0034083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                              Cass CE,
                                                                                                                                                             UNIV ALBERTA.
UNIV LEEDS.
                                                                                                                                                                                                                                             WPI; 1998-388035/33.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       456 AA;
                                                                                                                                                                                                                                                              N-PSDB; AAV40279
             W09829437-A2
                                                                            30-DEC-1997;
                                                                                                           03-NOV-1997;
                                                                                                                            30-DEC-1996;
                                          09-JUL-1998.
                                                                                                                                                                                                            Baldwin SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                             (UYAL-)
                                                                                                                                                                               (OYLE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local
                                                                                                                                                                                                                                                                                                                                                drug(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      232
```

g

ò qq õ

δ q ò Q

Db

ò

g

à

```
equilibrative nucleoside transporter protein (NBMPR-iENTP) isolated from Heal cells. The protein transports nucleosides across the plasma membrane by a facilitated diffusion process and is involved in the proliferative response. The transporter is useful in screening to identify natural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleoside permeants and/or their inhibitors or analogues, potential therapeutic agents, also for studies on protein structure and mechanism. Cells that express the iEMTP as the only transporter protein are used for drug screening (especially to identify antitumour and antiviral nucleoside analogues), in chemotherapy of cancer and for selective expression of heterologous genes for gene therapy. The cDNA is used (diagnostic primers and probes, ribozymes and antisense sequences). Antibodies raised against iEMTP are used for detection of the protein by usual immunoassays and as (ant)agonists of iENTP activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This sequence represents nitrobenzylmercaptopurineriboside-insensitive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Antiviral; antitumour; NBMDR-iENTP; nitrobenzylmercaptopurineriboside; insensitive, equilibrative nucleoside transporter protein; cancer; plasma membrane; facilitated diffusion; gene therapy; primer; probe.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63 TWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLLVIVL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYY------VNYWFKPDGVE 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New nucleic acid encoding nucleoside transporter, useful for drug screening to identify antitumour and antiviral agents and for gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ||| ||::| ::| | |||||| || ||:
| prdsyhlvgisffilglgtllpwnffltaipyfqarlagagnstarilstnhtgpedaf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          85;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                   376 SFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .5;
.4e-25;
. 200; .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14.2%; Score 326.5; 122.9%; Pred. No. 4e-2; ive 71; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (SJUD-) ST JUDE CHILDREN'S RES HOSPITAL.
                                                                                                                                                                                                               AAB15517 standard; Protein; 456 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2A-B; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            980S-0058389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0043659
                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                    Human NBMPR-iENTP protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 14.2
Best Local Similarity 22.9
Matches 106; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Belt JA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2000-637839/61.
N-PSDB; AAA95722.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           456 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Crawford CR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-APR-1997;
                                                                                                                                                                                                                                                                                                                                           14-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US6130065-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10-0CT-2000
                                                                                                                                                                                                                                                                              AAB15517;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                            404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
```

11;

V

```
9805-0100930
9805-0100848
9805-01000848
9805-01010049
9805-0101071
9805-0101071
9805-0101473
9805-0101473
9805-0101475
9805-0101475
9805-0101476
9805-0101476
9805-0101477
9805-0101479
9805-0101738
9805-0101738
9805-0101738
9805-0101738
9805-0102207
9805-0102207
9805-0102207
9805-0102330
9805-0102330
9805-0102330
9805-0102330
9805-0102330
9805-0102330
                                                                                                                                                                                                                                                                                                                                                                      980S-0102571.
98US-0102684.
98US-0102687.
98US-0102965.
98US-0103258.
98US-0103349.
          98US-0100684.
98US-0100710.
98US-0100711.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0103315.
98US-0103328.
98US-0103395.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98US-0103633.
98US-0103678.
98US-0103679.
98US-0103711.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98US-0105000.
98US-0105002.
98US-0105104.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0105169.
98US-0105266.
98US-0105693.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98US-0103396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0103401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98US-0104987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0105694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98US-0105807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98US-0105881
98US-0105882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0106062
98US-0106023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98US-0106029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0106030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98US-0106033
98US-0106178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0106248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98US-0106384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0108500
98US-0106464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98US-0106856
98US-0106902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0104257
         17 - SEP - 1998
18 - SEP - 1998
22 - SEP - 1998
23 - SEP - 1998
                                                                                                                                                 23-SEP-1998;
23-SEP-1998;
23-SEP-1998;
                                                                                                                                                                                  23-SEP-1998;
23-SEP-1998;
23-SEP-1998;
24-SEP-1998;
24-SEP-1998;
                                                                                                                                                                                                                                                                  24-SEP-1998;
29-SEP-1998;
29-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  03-NOV-1998;
03-NOV-1998;
                                                                                                                                                                                                                                           24-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                         30-SEP-1998
                                                                                                                                                                                                                                                                                                    29-SEP-1998
                                                                                                                                                                                                                                                                                                                           29-SEP-1998
                                                                                                                                                                                                                                                                                                                                                               30-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27-0CT-19
27-0CT-19
123 EPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITV 182
             : || : : |: || : : : || aml1smasgv-----daetsalgyfitpcvgilmsivcy1slph1kfaryylankssqa 230
                                                                                                        : |: || | | daqeletkaellqsdengipsspqkvaltldldlekepesepdepqkpgkpsvftvfqki 290
                                                                                          -----ETDRPSPSILWTTFINC 257
                                                                                                                                      258 YGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIG 317
                                                                                                                                                  318 SIVASKIHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAM 375
                                                                                                                                                                                                Human; PRO polypeptide; membrane bound protein; receptor; diagnosis; transmembrane; secretion; immunoadhesion; pharmaceutical; screening.
                                           183 VKI-----GVTYFLNDEPKLVAIVYF----GISLVILLVCAIALFFITKQDFY----HYHHQ
                                                                                                                                                                                                                                                                                                                                                                                   Human PR01380 (UNQ717) amino acid sequence SEQ ID NO:79.
                                                                                                                                                                                                                                 SFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                           AAY99363 standard; Protein; 475 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98US-0099808.
98US-0099808.
98US-0099812.
98US-0099815.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0099596.
98US-0099598.
98US-0099602.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0098803.
98US-0098821.
98US-0098843.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98US-0100661.
98US-0100662.
98US-0100664.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98US-0099642.
98US-0099741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         980S-0099536.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98US-0099763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0100385.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98US-0100390.
98US-0100584.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0098749
98US-0098750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98US-0099754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98US-0100627
                                                                                                                                                                                                                                                                                                                                                           08-AUG-2000 (first entry)
                                                                                        232 KGMEIREKA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200012708-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-SEP-1998

02-SEP-1998

02-SEP-1998

02-SEP-1998

09-SEP-1998

09-SEP-1998

09-SEP-1998

09-SEP-1998

10-SEP-1998

10-SEP-1998

110-SEP-1998

110-SEP-1998

110-SEP-1998

110-SEP-1998

110-SEP-1998

110-SEP-1998

110-SEP-1998

110-SEP-1998

110-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-SEP-1998;
16-SEP-1998;
16-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-SEP-1998;
15-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-SEP-1998;
10-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-SEP-1998
                                                                                                                                                                                                                                                                                                                                     AAY99363;
                                                                                                                                                                                                                                                                                         6
                                                                                                               231
                                                                                                                                                             291
                                                                                                                                                                                                                                376
                                                                   177
                                                                                                                                                                                                                                                                                                    AAY99363
                                                                                                                                                                                                                                                                                          RESULT
                                                                                                                                                                                                                                                                                                                 ò
                                                                                                               g
                                                                                                                                      ò
                                                                                                                                                           q
                                                                                                                                                                                   ò
                                                                                                                                                                                                         g
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                     g
                                            à
                                                                  q
```

ω

```
taslgfcvtyvffitsliypavct----nieslnkgsgslwttkffiplttfilynfad 359
257 CYGQLENVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSE--NDEIYTLLTSFLVFNLFA 314
                                                                   315 AIGSIVASKIHWPTP--RYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGG
                                                                                                         373 IAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                         Secreted; transmembrane; gene therapy.
                                                                                                                                                                                                     AAB66112 standard; protein; 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99WO-US28551.
+ 99WO-US30095.
2000WO-US00219.
2000WO-US00376.
                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0141037.
99US-0144758.
99US-0145698.
99WO-US20111.
                                                                                                                                                                                                                                                                                    Protein of the invention #24
                                                                                                                                                                                                                                                                                                                                                                                                                      2000WO-US04342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0162506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99WO-US28313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GETH ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gao W, Gouur.
T. Paoni NF
                                                                                                                                                                                                                                                                                                                                                                 WO200078961-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-1999;
01-SEP-1999;
29-OCT-1999;
30-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Watanabe CK,
                                                                                                                                                                                                                                                                                                                                         Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                      18-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-DEC-1999;
05-JAN-2000;
                                                                                                                                                                                                                                                           02-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        06-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-JUN-1999;
20-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                           28-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baker KP,
                                                                                                                                                                                                                                 AAB66112;
                          305
                                                                                                                                                                                        AAB6611
                                                                               a
                         q
                                                     δλ
                                                                                                         ολ
                                                                                                                                   g
                                                                                                                                                                                                        15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAA37022 to AAA37144 encode the new isolated human transmembrane, receptor or secreted PRO polypeptides given in AAY99340 to AAY99462. The transmembrane and receptor PRO proteins can be used for screening of potential peptide or small molecule inhibitors of the relevant receptor/ligand interactions. The polypeptides and nucleotide sequences encoding then have various industrial applications, including uses as pharmaceutical and diagnostic agents. AAA37145 to AAA37330 represent PCR primers and hybridisation probes used in the isolation of the PRO polypeptides from the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                     New mammalian DNA sequences encoding transmembrane, receptor or secreted PRO polypeptides, useful for screening of potential peptide or small molecule inhibitors of the relevant receptor/ligand interactions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --PDGVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYR 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYV 52
                                                                                                                                                                                                                                                                                                                                         Wood WI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 21; Length 475;
                                                                                                                                                                                                                                                                                                                                       Watanabe CK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ,2e-25;
nes 202;
                                                                                                                                                                                                                                                                                                                                       Smith V,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 4.26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14.2%; Score 326.5; 24.4%; Pred. No. 4.20
                                                                                                                                                                                                                                                                                                                                       Gurney AL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 12; Fig 48; 773pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83;
         98US - 0106919.
98US - 0106932.
98US - 0106934.
98US - 0107783.
98US - 0108775.
98US - 010878.
98US - 0108801.
98US - 0108802.
98US - 0108807.
                                                                                                                                                                                                                                                        98US-0108852.
98US-0108858.
98US-0108904.
                                                                                                                                                                                                                                             98US-0108851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 24.4
Matches 116; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7 SNTYAVEQEAF-----
                                                                                                                                                                                                                                                                                                              (GETH ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                       Goddard A,
                                                                                                                                                                                                                                                                                                                                                               WPI; 2000-237871/20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            475 AA;
                                                                                                                                                                                                                                                                                                                                                                               N-PSDB; AAA37045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NYWFK - - - -
                         1998;
                                                    988:
                                                                                                                                                                            NOV-1998;
                                                                                                                                                                                       17-NOV-1998;
                                                                                                                                                                                                                                                                                   18-NOV-1998;
                                                                                                                                                                                                       18-NOV-1998
                                                                                                                                                                                                                               18-NOV-1998
                                                                                                                                                                                                                                              18-NOV-1998
                                                                                                                                                                                                                  18-NOV-1998
                                                                                                                                                                                                                                                            18-NOV-1998
                                                                                                                                                                                                                                                                        NOV-1998
                                                                                                                                                                                                                                                                                                                                       Baker K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                      -NOV-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                 17-NOV-1
                                                                                                                                                               17-NOV-1
                                                                                           17 - NOV - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          53
```

AA

```
15;
                                                                                                                                                                                       Secreted and transmembrane proteins and nucleic acids designated PRO, useful as hybridization probes, in chromosome and gene mapping and gene therapy -
                              Hillan KJ;
                                                                                                                                                                                                                                                                                                                                                                         The present invention relates to secreted and transmembrane proteins. These proteins and the DNA encoding them may be used as hybridization probes, in chromosome and gene mapping and in the generation of anti-sense RNA and DNA. They may also be used used to generate either transgenic animals or knockout animals which are in turn useful for development and screening of therapeutically useful reagents. The nucleic acids may also be used in gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
      Fong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 475;
   Ferrara N,
                              Gurney AL,
A, Tumas D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14.2%; Score 326.5; DB 22;
ilarity 24.4%; Pred. No. 4.2e-25;
Conservative 83; Mismatches 202;
Botstein D, Desnoyers L, Eaton DL, F
ddard A, Godowski PJ, Grimaldi CJ, Gu
Di NF, Roy MA, Smith V, Stewart TA,
K, Williams PM, Wood WI;
                                                                                                                                                                                                                                                                                                                     Claim 1; Fig 48; 787pp; English.
                                                                                                                                                WPI; 2001-071395/08
                                 Goddard A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity
Matches 116; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             475 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
```

80 ---fklrnssspatgedpegsd--ilnyfesylavastvpsmlclvanfllvnrvavhir 134 .01 VFAPVCFNIVNLTIILILVIVLEP--TEDSMSW---FFWVTLGMATSINFSNGLYENSVY 155 135 vla-----sltvilaifmvitalvkvdtsswtrgffavtivcmvilsgastvfsssiy 187

ò dd õ pp Q q ò g

156 GVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAI

σ

į

```
315 AIGSIVASKIHWPTP--RYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGG 372
                                                                                                                                                                                                                                                                                          NYWFK------PDGVETWYSKEFMGSLTIGSQLPNASINVFNLFLIIAGPLIYR 100
                                                                                       101 VFAPVCFNIVNLTIILLILVIVLEP--TEDSMSW---FFWVTLGMATSINFSNGLYENSVY 155
                                                                                                                                                                                                        247 lylllsrleyaryymrpvlaahvfsgee--elpqdslsapsvasrfidshtpplrpilkk 304
                                                                                                                                                                                                                              257 CYGQLFNVWFCFAVTLTIFPVMMTVTTRGDSGFLNKIMSE--NDEIYTLLTSFLVFNLFA 314
-PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYV 52
            and
                                                                                                                                   GVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLNDEPKLVAIVYFGISLVILLVCAI
                                                                                                                                                                                216 ALFFITKQDFYHY------LWITFTN
                                                                                                                                                                                                                                                                                                                                      373 IAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 equilibrative nucleoside transporter; hENT1; hENT2; rENT1; ); coronary; cerebrovascular anoxia; viral infection; cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Newly isolated equilibrative nucleoside transporter protein(s) gene(s) - used to develop products for treating disorder(s) associated with the transporter(s) and for use with nucleoside
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rat equilibrative nucleoside transporter 2.
                                                                                                                                                                                                                                                                                                                                                                                                          AA.
                                                                                                                                                                                                                                                                                                                                                                                                         AAW69557 standard; Protein; 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Young JD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 5; Fig 14; 97pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97WO-IB01657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97US-0064004
96US-0034083
                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (UYAL-) UNIV ALBERTA. (UYLE-) UNIV LEEDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cass CE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1998-388035/33.
SNTYAVEQEAF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; AAV40278
                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-OCT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9829437-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-NOV-1997;
30-DEC-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baldwin SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rattus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                               AAW69557;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rat; eq
rENT2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               drug(s)
                                                                                                                                                                                                                                                                                                                                                                                  RESULT 11
                                                                80
                                                                                                            135
                                                                                                                                   156
                                                                                                                                                          188
                                                                                                                                                                                                                                                                                                                                                                                            AAW69557
                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                          ŏ
                                                             g
                                                                                                            g
                                                                                                                                                        qq
                                                                                                                                                                                 δ
                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                         δλ
                                                                                                                                                                                                                                                                                                                                               q
                                                                                       ŏ
                                                                                                                                   ò
                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                            δ
```

```
13;
The present sequence represents a substantially purified equilibrative nucleoside transporter (ENT), rat ENT2 (rENT2). ENTS can transport a variety of purines and pyrimidines, including adenosine, uridine, guanosine, formycin B, tubercidin, and thymidine. ENTS are bidirectional, they transport a suitable permeant both into and out of earls. ENTS can be used as a tool for the development of new nucleoside drugs. Products from the present invention can be used for treating a subject having a disorder associated with an ENT. They can also be used with nucleoside drugs in the treatment of e.g. coronary or cerebrovascular anoxia, viral infection or cancer. The products (e.g. antibodies and oligonucleotides hybridising to nucleic acid sequences encoding ENTS) can also be used for detection and drug screening.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67 nnwvtllsglp111ftllnsflygcipesvrilg----sllail11faltaalvkvdlsp 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       || :|: |: || | sgv-----dpqtsalgyfitpcvgillslicylslphlkfaryyltkpqapvqeletk 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MGSLTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILLILVIVLEPTEDSM 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGL-----LITVVK 184
                                                                                                                                                                                                                                                                                                                                                                                                                      ||| |::| ::| | |||| ||| | |:
prdsynlvgisffilglgtllpwnffitaipyfggrlagtnssaetpstnhtsptdtfnf 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              224 - DFYHYHHQKGMEIR------EK----AETDRPSPSILWTTFTNCYGQLFNV
                                                                                                                                                                                                                                                                                                                                                                                                 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGVETWYSK-----EF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         265 WFCFAVTLTIFP-VMMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      324 IHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aellgadekngipvspggagptldldpekelelgleepgkpgkpsvfvvfrkiwltalcl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          185 IGVTYFLNDEPKLVAIVYF---GISLVILLVCAIAL-----FFITKQ------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            equilibrative nucleoside transporter; hENT1; hENT2; rENT1; coronary; cerebrovascular anoxia; viral infection; cancer.
                                                                                                                                                                                                                                                                                                                  Length 456;
                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                    DB 19;
                                                                                                                                                                                                                                                                                                                tch 14.0%; Score 320.5; DB 19; al Similarity 23.5%; Pred. No. 1.7e-24; 107; Conservative 76; Mismatches 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    410 fvsltmclaprqvlpherevagalmtfflalglscg 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTG 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rat equilibrative nucleoside transporter 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW69556 standard; Protein; 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97WO-IB01657.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                                                                                                                                                                                                           456 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W09829437-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-DEC-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-JUL-1998
                                                                                                                                                                                                                                                                                                                Query Match
Best Local S:
Matches 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rattus sp.
                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW69556;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rENT2;
                                                                                                                                                                                                                                                                                                                                                                                               18
                                                                                                                                                                                                                                                                                                                                                                                                                                    7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW69556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
AAW64550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          287
AAW64550
                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present sequence represents a substantially purified equilibrative nucleoside transporter (ENT), rat ENT1 (rENT1). ENTS can transport a variety of purimes and pyrimidines, including adenosine, uridine, equanosine, formycin B, tubercidin, and thymidine. ENTS are bidirectional, they transport a suitable permeant both into and out of cells. ENTS can be used as a tool for the development of new nucleoside drugs. Products from the present invention can be used for treating a subject having a disorder associated with an ENT. They can also be used with nucleoside drugs in the treatment of e.g. coronary or cerebrovascular anoxia, viral infection or cancer. The products (e.g. antibodies and oligonucleotides hybridising to nucleic acid sequences encoding ENTS) can also be used for detection and drug screening.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---IVNLTII 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66 psvslparsslsaifnnvmtlcamlpllif--tclnsflhqkvsqslrilgsllaillvf 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LILVIVLEPTEDSMSWFFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNI 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18 PRDKYNIVYWLVILVGFGVLLPWNMFITIAPEYYVNYWFKPDGV----ETWYSKEFMGS 72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |: ::: |::| || :|: || :: | :: |::|: | | | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: | :: |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           176 CGLLITVVKI-------GVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183 agfftsvamicavasgsklsesafgyfit----acavv----ilailcylalpwm---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WITFINCYGQLFNVWFCFAVILIIFPVMMTVTTRGDSGFLNKIMSENDEIYTLLISFLVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    311 NLFAAIGSIVASKIHWP--TPRYLKFAIILRALFIPFFFFCNYRVQTRAYPVFFESTDIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               369 VIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAAQLSVCTLMVGLLTGGLWPVVIEHFV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : | :|| | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | : | | : | : | | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               230 efyrhylqlnlagpaeqetkldlisegeeprggreesgvpgpnslpanrngsikailksi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Newly isolated equilibrative nucleoside transporter protein(s) gene(s) - used to develop products for treating disorder(s) associated with the transporter(s) and for use with nucleoside
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13.1%; Score 301; DB 19; Length 457; larity 22.3%; Pred, No. 1.7e-22; Conservative 84; Mismatches 191; Indels 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----KGMEIR-EKAETDRPSPSIL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73 LTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFN-
                                                                                                                                                                                                                                                                                                                                 Young JD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 5; Fig 9; 97pp; English.
                                       97US-0064004
96US-0034083
                                                                                                                                                                                                                                                                                                                            Cass CE,
                                                                                                                                                                                 ALBERTA
                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1998-388035/33.
N-PSDB; AAV40277.
                                                                                                                                                                                                                                   UNIV LEEDS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
es 107; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             224 DFУНУННО-
                                       03-NOV-1997;
30-DEC-1996;
                                                                                                                                                                                 UNIV
                                                                                                                                                                                                                                                                                                                            Baldwin SA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                 UYAL-)
                                                                                                                                                                                                                                   (UYLE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   drug(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             251
```

g

ò

ŏ

QQ

ò

ð

В

ò

q

δ g ò g ò RESULT 13

```
Transmembrane domain; human; nutrition; cytokine; cell proliferation; differentiation; immune system; stimulator; suppressor; regulator; heamatopoiesis; activin; inhibitor; chemotactic; chemokinetic; receptor; haemostatic; thrombolytic; ligand; anti-inflammatory; tumour.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         stimulating/suppressing, haematopoiesis regulating, tissue growth, activin/inhibin, chemotactic/chemokinetic, haemostatic and thrombolytic, receptor/ligand, anti-inflammatory or tumour inhibition activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133 FWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKIGVTYFLN 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        selsesafgyfitacaviiltiicylglprlefyryygqlklegpgegetkldliskgee 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   345 FFFFCNYRVQTRAY-PVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSRFAA 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW64534-W64558 represent human proteins containing a transmembrane domain. These proteins can be used for, e.g. research and nutrition, may have cytokine and cell proliferation/differentiation, immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73 LTIGSQLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLEPTEDSMSWF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 mtlcamlplllftylnsflhgripgsvrilgsl---vaillvflitailvkvgldalp-f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         236 IREKAETDRPSPSILWTT-----FTNCYGQLFNVWFCFAVTLTIFPVMMTVTTRGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TPRYLKFAIILRALFIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | : : : | | | | : | : | | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pragkeesgysvsnsgptneshsikailknisvlafsvcfiftitigmfpavtvevkssi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 373;
                                                                                                                                                                                                                                                                                                                                                Human fibrosarcoma cell line HT-1080 clone HP10235 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.1e-19;
thes 187; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human protein having transmembrane domain - useful for,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 272.5; DB 19;
Pred. No. 1.1e-19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHYHHQ-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yamaguchi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ed. No. 1.1e
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; Page 108-109; 205pp; English.
standard; Protein; 373 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sekine S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SAGAMI CHEM RES CENTRE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11.9%;
23.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97WO-JP04056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  96JP-0301429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1998-297932/26.
N-PSDB; AAV49582, AAV49583.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       =
-
-
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        research and nutrition
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kobayashi M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (PROT-) PROTEGENE INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ouery Match
Best Local Similarity
Matches 91; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9821328-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13-NOV-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                  21-0CT-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-MAY-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kato S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ag-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SAGA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
```

and

6

a ò qq

Length 397;

The second second

```
The present invention describes primer sets for synthesising 5602

full-length cDNAs defined in the specification. Where a primer set

comprises: (a) an Oilgo-dr primer and an Oilgonucleotide complementary

to the complementary strand of a polynuclectide which comprises one of

the 5602 nucleotide comprises at least 15 nucleotides; or (b) a combination

complementary strand of a polynucleotide which comprises a 5'-end

complementary strand of a polynucleotide which comprises a 5'-end

complementary strand of a polynucleotide which comprises a 5'-end

complementary strand of a polynucleotide which comprises a 5'-end

complementary strand of a polynucleotide which complementary to the

complementary strand of a polynucleotide comprises a 5'-end

complementary strand of a polynucleotide which comprises a 5'-end

complementary strand of a polynucleotide comprises a 5'-end

complementary strand of a polynucleotide comprises a 5'-end

complementary to the

cof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Primer sets for synthesizing polynucleotides, particularly the 5602 full-length cDNAs defined in the specification, and for the detection and/or diagnosis of the abnormality of the proteins encoded by the full-length cDNAs -
291 llllcn--ikprryltvvfehdawfiffmaafafsngylas1cmcfgpkkvkpaeaetag 348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    detection; diagnosis; antisense therapy; gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yamamoto J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Saito K, Ya
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 8; SEQ ID 12928; 2537pp + CD ROM; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       hikawa T, Hayashi K, S
Wakamatsu A, Nagai K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human protein sequence SEQ ID NO:12928
                                                                                  404 QLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                     : | : | | : : | | 349 aimafflclqlalqavfsflfraiv 373
                                                                                                                                                                                                                                                                                                                                                                                        AAB93550 standard; Protein; 397 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sogai T, Nishikawa
Sugiyama T, Wakama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99JP-0248036.
99JP-0300253.
2000JP-0118776.
2000JP-0183767.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28-JUL-2000; 2000EP-0116126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000JP-0241899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HELI-) HELIX RES INST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 2001-318749/34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Isogai T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-AUG-1999;
11-JAN-2000;
02-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EP1074617-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-JUL-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ishii S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB93550;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human;
                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                        AAB93550
                                                                                                                                                                                                                                                                                                          RESULT
```

Sequence

```
10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to the isolation of a gene encoding a NBMPR·iENTP (nitrobenzylmercaptopurineriboside-insensitive, equilibrative nucleoside transporter protein) from HeLa cells. The protein transports nucleosides across the plasma membrane by a facilitated diffusion process and is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Antiviral; antitumour; NBMPR-iENTP; nitrobenzylmercaptopurineriboside; insensitive, equilibrative nucleoside transporter protein; cancer; pjasma membrane; facilitated diffusion; gene therapy; primer; probe.
                                                                                                                                                                                                                                                                                    340
                                                       69 FMGSLTIGSOLPNASINVFNLFLIIAGPLIYRVFAPVCFNIVNLTIILILVIVLEP--TE 126
                                                                                                              DSMSW---FFWVTLGMATSINFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVV 183
                                                                                                                              196
                                                                                                                                                                                                                           : ||| : : ||| : : ||:||::|
251 -niesInkgsgslwttkffiplttfllynfadlcgrqltawirvpgpnskalpgfvllrt 309
                                                                                                                                                                                                                                                                                                                                           LFIPFFFFFCNYRVQTRAYPVFFESTDIFVIGGIAMSFSHGYLSALAMGYTPNVVPSHYSR 400
                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                      New nucleic acid encoding nucleoside transporter, useful for drug screening to identify antitumour and antiviral agents and for gene
                                                                                                                                                                    184 KIGVTYFLNDEPKLVAIVYFGISLVILLVCAIALFFITKQDFYHY------HHQKGME
                                                                                                                                                                                     285 GDSGFLNKIMSE--NDEIYTLLTSFLVFNLFAAIGSIVASKIHWPTP--RYLKFAIILRA
                             43;
                             Indels
 11.4%; Score 261.5; DB 22; 23.7%; Pred. No. 1.7e-18; ive 72; Mismatches 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SJUD-) ST JUDE CHILDREN'S RES HOSPITAL.
                                                                                                                                                                                                                                                                                                                                                                                                 401 FAAQLSVCTLMVGLLTGGLWPVVIEHFV 428
                                                                                                                                                                                                                                                                                                                                                                                                                   370 atgvvmsfyvclgltlgsacstllvhli 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fig 2A-B; 55pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB15519 standard; Protein; 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97US-0043659.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98US-0058389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Belt JA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2000-637839/61.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human HNP36 protein.
Query Match
Best Local Similarity
Matches 92; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          09-APR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Crawford CR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US6130065-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10-OCT-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB15519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               therapy
                                                                                                            127
                                                                                                                                                                                                                                                                                                                                            341
                                                                                                                                                                                               138
                                                                                                                                                                                                                                                        197
                                                                                  qq
                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                             qq
                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                   Qy
                                                                                                                                                                                                                                                                                                                                                                                                                          QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                       Op
                                                                                                                                                                    δ
                                                                                                                                                                                               g
                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                           δ
```

```
Inhibitors or analogues, potential therapeutic agents, also for studies on protein structure and mechanism. Cells that express the iENTP as the only transporter protein are used for drug screening (especially to identify antitumour and antiviral nucleoside analogues), in chemotherapy of cancer and for selective expression of heterologous genes for gene therapy. The CDNA is used for recombinant expression of iENTP and as a source of oligonucleotides (diagnostic primers and probes, ribozymes and antisense sequences). Antibodies raised against iENTP are used for execution of the protein by usual immunoassays and as (ant)agonists of iENTP activity. This sequence represents the human HNP36 protein as used for comparison with the human NBMPR-iENTP protein (AAB15517).
involved in the proliferative response. The transporter is useful in
                              screening to identify natural nucleoside permeants and/or their
```

326 AA; Sequence

ω .. | :|| : | |||::|| 121 sspqkvaltldldlekepesepdepqkpgkpsvftvfgkiwltalclvlvftvtlsvfpa 180 198 VAIVYF---GISLVILLVCAIALFFITKQDFY---HYHHQKGMEIREKA----- 240 |: || |: ::::|| :: |: || 61 salgyfitpyvgilmsivcylslphlkfaryylankssqaqaqeletkaellqsdengip 120 278 MMTVTTRGDSGFLNKIMSENDEIYTLLTSFLVFNLFAAIGSIVASKIHWP--TPRYLKFA 335 143 INFSNGLYENSVYGVGGDFPHTYIGALLIGNNICGLLITVVKI-----GVTYFLNDEPKL 197 -----ETDRPSPSILWTTFTNCYGQLFNVWFCFAVTLTIFPV 277 Ouery Match 9.3%; Score 214; DB 21; Length 326; Best Local Similarity 22.0%; Pred. No. 1e-13; Matches 71; Conservative 52; Mismatches 139; Indels 60; Gaps 7 insfsavlggslfgqlgtmpstystlflsggglagifaalamllsmasgv-----daet 60 294 pherevagalmtfflalglscg 315 396 SHYSRFAAQLSVCTLMVGLLTG 417 241 Db_ ολ ò Ωp οp qq δ g δ δ

Search completed: February 27, 2002, 16:59:32 Job time: 199 sec

1, 2,